THE DOCK & HARBOUR AUTHORITY

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Editorial.

The Bromborough Dock.

At a time of national industrial depression, it is heartening to contemplate such an enterprise as that of the Bromborough Dock, the new deep-water basin on the Cheshire bank of the River Mersey which was opened on April 17th by the Right Hon. William Graham, the President of the Board of Trade. It typifies the initiative with which that great British concern, Lever Brothers Ltd., confronts its problems of manufacturing, marketing and world competition.

The dock is the culmination of a project conceived many years ago by the late Lord Leverhulme. It was in 1923 that Parliament authorised the building of the dock, and work began in December, 1924. Hitherto, the water-transport requirements of the Port Sunlight works—which comprise the largest soap and allied factories in the world—had been met by barges using a tidal stream called Bromborough Pool, which wound its way from the Mersey between mud flats and under the main Chester road to the factory wharves. This meant that raw materials had to be unloaded at the Liverpool or Birkenhead docks from the cargo vessels, taken over by barges, and so conveyed to the works There was the same multiplication of handling in the despatch of finished goods. The problem, as Lord Leverhulme might have defined it to himself, was this: " By virtue of our tropical plantations and whaling stations we have made ourselves substantially independent in the provision of the raw materials of our industry. Why should this self-contained circle be broken in bringing our imports home, and sending out our exports? Between us and the Mersey stretch the 600 acres of the Bromboro Port Estate, our subsidiary enterprise. It has over a mile frontage to the river, the only remaining deep frontage to the estuary, moreover. Why not build a dock there, which will allow us to bring our materials to the very yards of the factories, transfer our finished goods direct from warehouse to steamer, and so cut out the time and labour cost of intermediate handling?"

That has been done. A hundred acres of land have been reclaimed from muddy waste, and an insignificant stream has been made the foundation of one of the world's largest private docks.

It will serve not alone the water-borne traffic of the Port Sunlight soapworks, but that of the other undertakings associated with Lever Brothers and the Unilever organisation in that neighbourhood, already established or about to be established on the Bromboro Port Estate. That Estate is ripe for development, and is like to play an important part in the future industrial history of Merseyside and the United Kingdom.

The dock works extend for 1¼ miles along the foreshore of the west bank of the Mersey, about 2½ miles north of the Eastham entrance to the Manchester Ship Canal. The dock itself, with its adjoining quays, occupies some 37 acres, flanked on the north and south by two large areas which have been enclosed by retaining walls and embankments, and are being reclaimed from the Mersey. This reclamation will provide over 100 acres of new land suitable for industrial development.

The basin is rectangular in form and has a deep water area of about 18 acres. In addition to this, the course of the Bromborough Pool has been " dockised " for a distance of about two-thirds of a mile above the dock to beyond the Port Sunlight wharves. This will allow uninterrupted barge traffic —hitherto restricted to a few hours on each tide—between the dock and the works quays. The depth of water provided in the dock is 35-ft. at spring tides, and one quay has been specially equipped as an oil quay with a berth excavated to a lower level which will enable a vessel drawing up to 27-ft. to lie there safely on any tide during the year. Behind this quay is a tank installation capable of storing some 25,000 tons of oil. There are three other principal quays, and a short quay designed for barge traffic, and altogether 2,575 linear feet of berthage are provided. The dock is approached through a short lock entrance, 75-ft. wide and 165-ft. long between the heel-posts of the steel lock gates, which can be opened or closed in 1½ minutes.

The Bromborough Dock has the great advantage that all the berths are rail berths, where vessels can discharge direct overside into railway vehicles, thus eliminating the expensive and time-consuming process of carting to and from import and export steamers. It is centrally situated in relation to the various canals. The Manchester Ship Canal, the Bridgewater Canal, and the others which connect with the Ship Canal and the Leeds and Liverpool Canal are all within easy reach. It is connected by a double line of railway with the Port Sunlight railway system and sidings, and also with the London Midland and Scottish and Great Western Joint Railways.

The total quantity of materials, exclusive of dredging, excavated in the course of the building of the dock and its works was about 1,100,000 cubic yards, including some 448,000 cubic yards of rock. The work of construction has been carried out to the designs of Lever Brothers' consulting engineers, Messrs. A. J. Barry and Partners and Sir John Wolfe Barry and Partners, and it has provided regular employment for from 400 to 500 men during 6¼ years.

Southampton Criticised as a Port.

The groundings of the Holland-Amerika Liner " Statendam" on the Brambles, and of the " Berengaria " at a point 4 miles east of the Nab Tower, a few days previously, have resulted in certain criticisms being made of Southampton as a port.

It is important to remember that both the groundings happened in fogs, a menace which can descend on any harbour and from which Southampton, generally speaking, suffers less than most ports. While the " Statendam " certainly grounded in the approaches to Southampton, the " Berengaria " met with her misadventure in the English Channel, while heading for the port.

It has been suggested in some quarters that Southampton's approaches are imperilled by moving sandbanks, and that mud dredged from the River Test in connection with the Dock Extension Scheme was not being dumped far enough out to sea, so that it was washed back again by the tide. It is hardly necessary to say both these ideas are purely imaginate. Southampton is certainly not bothered with moving sandbanks, and the mud which is dumped has to be deposited well out in the Channel.

There has been a suggestion of silting, but Southampton probably suffers less from silting than any other big port in the Kingdom, a fact which was emphasised a few years ago when the hydrographical surveyor to the Harbour Board surveyed the deep channel throughout its entire length and breadth. His report was an astounding document, revealing that over a period of years practically no silting had taken place. There is no reason why there should be any sudden change. The Rivers Itchen and Test have scoured their courses well in the past, and doubtless will continue to do so. It is interesting to note that during 1930 over 3,700 vessels, according to the Southampton Docks statistics, used the port, and only one had the misfortune to touch bottom.

Work on the dredging scheme which was sanctioned by the Southampton Harbour Board in February has been begun, a start being made with that portion outside Calshot. The dredging scheme, which is estimated to cost £240,000, will result in the widening of the deep water channel to 1,000-ft., and a deepening to 38-ft. almost throughout its entire length.

The Port of New York

Latest Data issued by the Bureau of Commerce

Freight-handling Equipment at the Port of New York.

THIS is a machine age when labour-saving devices are being introduced into every phase of human activity. The transfer of freight from ship to shore is a service requiring efficient co-operation of labour and machinery.

The visitor at the Port of New York sometimes remarks the lack of the visible concentration of cranes and other freight-handling equipment which are such a dominating feature of waterfronts at Hamburg and other European ports. The Port of New York, however, is well equipped with freight-handling machinery, far beyond the realisation of most of those who casually traverse its 771 miles of waterfront.

In 1920 the New York, New Jersey Port and Harbour Development Commission, after a careful survey of freight-handling equipment at the Port of New York, observed:

"There is a widespread opinion that the Port of New York is sadly lacking in machinery for unloading and loading ships and other floating craft; and that this lack of machinery has forced the operating companies to depend on obsolete methods of transfer, entailing great economic loss. Critics point to the cranes so conspicuous at the docks in Hamburg and other European ports, and then note their absence in New York, and the prevailing use of ship's gear, with its confusion of booms and cables, and seeming crudeness. The opinion is in the main unwarranted. In the first place, the cranes of the European ports are not used exclusively, as many assume; in the second place, the Port of New York has a vast waterfront, and scattered within its bounds is more freight-handling machinery than can be found in any other three salt-water ports in the United States, measured in terms of value, weight, extent or transfer capacity."

A complete statement of the exact amount of freight-handling machinery employed in the Port of New York is well-nigh impossible on account of the far-flung limits of the port and the large numbers of steamship, railroad terminal, stevedoring, public utility and industrial companies operating such equipment. A partial survey of the equipment of the port by the staff of the Port Authority shows, however, an astounding quantity of freight-handling equipment in use. This machinery may be divided into three categories. (1) Heavy cranes employed in the handling of general freight from ship to shore. (2) Smaller hoists, elevators, escalators, conveyors and portable equipment such as battery trucks, Ross carriers, etc., used to speed up movement of goods from ship to pier or from pier to warehouse and storage yard. (3) Fixed installations of water-front industries for the unloading of fuel and raw materials and the distributing of their products and their waste.

In this selection of heavy crane equipment, steamship, terminal and stevedoring operators at the Port of New York have been governed by the type of cargoes handled and the geography of the port. While there is a heavy tonnage of inbound raw materials handled by the waterfront industries, the majority of the steamship cargoes, particularly for export, are highly diversified, including everything from automobiles to anchors, from buttons to bonnets, from clocks to cranes and from door mats to dynamos. Furthermore, these ships dock at more than two hundred and fifty deep-water piers, located all the way from Staten Island, South Brooklyn, and Port Newark, to Weehawken and midtown Manhattan.

Flexibility is therefore the keynote of the freight-handling installations in the Port of New York. Steamships make full use of their own tackle and winches and achieve some surprising records in the transfer of freight both to the piers and overside to lighters. Most of the newer piers in New York Harbour, over fifty of them, are equipped with cargo masts, which supplement the ship's tackle in these operations. Several piers are also equipped with gantry cranes on the apron outside of the shed. There are upwards of fifty electric gantry cranes operating at piers and quays in New York Harbour, with capacities up to thirty tons. At some of the railroad-owned steamship piers on the New Jersey waterfront locomotive cranes are also used.

Most of the heavy hoisting from ship to shore in New York Harbour is done by floating derricks which are quickly moved alongside ship at any pier in the harbour. The railroad companies themselves operate a fleet of 40 floating derricks with capacities up to 40 tons. Private lighterage companies maintain 185 floating hoists. Among these is the Merritt-Chapman and Scott Corporation fleet of 33 floating derricks especially designed for heavy lifts, one of which is capable of handling pieces weighing 300 tons.

The Port of New York leads all other ports in the world in the number and capacity of floating crane equipment. Other ports are gradually discovering the utility of this mobile equipment. Even Hamburg, noteworthy for its array of quay cranes, has recently turned to floating hoists. The United States Trade Commissioner at Hamburg reports that the port authorities have purchased two self-propelled floating cranes for use in the harbour. United States ports are following the lead of New York in providing themselves with floating derricks.

The research committee of the American Association of Port Authorities, in reporting in November, 1929, agreed "That for the handling of heavy lifts it is believed that a floating, heavy-capacity derrick barge is the most suitable equipment for the reason of its mobility. A stationary heavy handling crane or shearleg derrick located on one of the treminals requires the shifting of vessels to that particular terminal, causing added expense to the steamship company." Instead of lagging behind in port equipment for handling heavy pieces of freight, the Port of New York is among the most adequately equipped with mobile hoists.

Value of Foreign Trade at the Port of New York.

Foreign trade at the Port of New York during February, 1931, was valued at $174,944,000, as compared with $280,658,000 for the same period last year, a decline of 38 per cent.; exports were 36 per cent. lower than last year and imports 39 per cent. off.

The January and February comparisons for 1930 and 1931 are as follows:

	1931	1930	Net Change Amount	Per Cent.
January				
Exports	$86,441,000	$158,662,000*	—$72,221,000	—45.5
Imports	87,067,000	152,812,000*	— 65,745,000	—43.0
Export and Import	173,508,000	311,474,000	—137,966,000	—44.3
February				
Exports	$91,334,000	$143,659,000	—$52,325,000	—36.4
Imports	83,610,000	136,999,000	— 53,389,000	—39.0
Export and Import	174,944,000	280,658,000	—105,714,000	—37.6

*In the April, 1931, issue of the DOCK AND HARBOUR AUTHORITY the Import and Export figures for January, 1930, were transposed.

Upturn in Commerce at Port Newark.

Receipts of lumber by vessel at Port Newark during the month of February, 1931, amounted to 20,510,000 board feet, representing an increase of 26 per cent. over the amount received during the same period last year.

Cargo other than lumber received by vessel during the month also registered an increase as compared with February of last year, being 8,604 tons as against 6,500 tons, or a gain of 32 per cent.

Although the volume of receipts was greater than during the same month in 1930, the number of vessels arriving was 26 as against 30 in February of last year, a drop of 13 per cent.

The efficient handling of lumber from ship to wharf at Port Newark was demonstrated recently when 1,081,000-ft. of lumber was discharged from the steamer "Cubore" of the Calmar Line in 8 hours. Six gangs were used. The usual time for unloading a cargo of this kind is said to be 12 hours.

Steamship Passenger Traffic.

Foreign travel via the Port of New York was lower in January, 1931, than in the same month last year. The total number of travellers amounted to 47,260 citizens and aliens and represents a drop of 25 per cent. from the total of 63,378 recorded a year ago.

The most pronounced feature of this decrease in inbound passengers was the falling off of immigrants, due to the greatly reduced national quotas admitted.

	January 1931	January 1930
INBOUND—		
Aliens—Immigrant ...	2,651	8,898
Non-Immigrant ...	5,268	6,537
U.S. Citizens	10,409	11,754
Total ...	18,328	27,189
OUTBOUND—		
Aliens—Emigrant	2,535	2,817
Non-Emigrant ...	12,609	15,695
U.S. Citizens	13,788	17,677
Total ...	29,932	36,189
Inbound and Outbound Total	47,260	63,378

Steamship Sailings.

The total of 1,333 sailings in all trades from the Port of New York in February shows a small decrease as compared to February, 1930.

The regular foreign services had 28 sailings less or an average drop of one vessel per day for the month. An increase

The Port of New York—continued

in sailings via the Italy-Mediterranean route reflects the improved and faster vessels now operating to these ports. Special cruises were fewer than last year.

All of the domestic services, with the exception of sailings via Long Island Sound, fell off somewhat from a year ago.

The peak day of the month was Saturday, February 28th, when a total of 89 vessels sailed from the port. Of this total, 45 were in foreign service and included 7 to the United Kingdom, 5 to the River Plate, 15 to Carribbean-Mexican ports, and 1 tanker. The 44 domestic sailings included 3 to the Pacific Coast, 8 to South Atlantic and Gulf ports, 7 tankers, and 3 coal carriers.

	February, 1931	February, 1930
	Number of Sailings	
FOREIGN—		
United Kingdom	37	37
Baltic	12	19
Hamburg-Bremen	14	19
Rotterdam-Antwerp	13	19
French Atlantic	15	13
Spain-Portugal	4	5
Italy-Mediterranean	38	30
India	5	3
Africa	9	9
Caribbean-Mexican	146	157
South America (East Coast)	23	30
South America (West Coast)	11	11
Australasia	3	8
China-Japan-Dutch East Indies	22	21
Canada Atlantic	10	9
Total Regular Sailings	362	390
Special Cruises	13	22
Foreign Residue (Vessels in foreign trade clearing to other domestic ports to deliver residue of cargo or in ballast)	68	90
Tankers	45	35
Total	488	537
INTERCOASTAL—		
Direct	25	29
Residue (Vessels in intercoastal trade clearing to other Atlantic ports to deliver residue of cargo or in ballast)	21	31
Tankers	10	12
Total	56	72
COASTAL—		
General Cargo	113	120
Tankers	79	86
Coal	53	47
	245	253
Sound	412	360
River	132	132
Grand Total Sailings	1,333	1,354

Vessel Movements in Foreign Trade.

The number and tonnage of vessels entered and cleared in foreign trade alone during the month of February, 1931, continues to be fewer than those of last year:—

	February 1931		February 1930	
	No. of Vessels	Vessel Tonnage	No. of Vessels	Vessel Tonnage
Entrances	439	2,127,771	515	2,329,854
Clearances	484	2,261,468	527	2,308 283

New York State Barge Canal.

The report of the New York State Superintendent of Public Works just issued shows that manufactured products continued to exceed agricultural products in the tonnage handled by the New York State Barge Canal. A record tonnage of 3,605,457 was handled in 1930 over the Barge Canal System, sub-divided into the following classifications:—

Commodity Group	Tons
Products of Manufacture	1,412,037
Products of Agriculture	1,316,950
Products of the Ground	662,112
Products of Forests	177,485
Products of Animals	500
	3,(05,457

Manufactured products, chief among which are oil, iron and steel, sugar, fertilizers, salt, pepper, chemicals, automobiles, etc., exceeded even the heavy shipments of wheat and other agricultural products, which are traditionally associated with the canal. Records kept since 1837 show that the principal commodities in the early years of canal operation were listed as products of forests but that by 1860 the products of agriculture, primarily grain, forged ahead until 1880. From 1880 to 1920 products of the forest and products of agriculture were about evenly matched in the canal tonnage. With the revival of the grain traffic through the new canal system agricultural products rose rapidly into the lead until 1927, when the trade in manufactured products placed that group of commodities paramount in the traffic of the canal.

The 1930 tonnage showed an increase of 25 per cent. over the previous year and is the largest tonnage carried since the opening of the new Barge Canal System in 1919. Within the past 12 years there has been a total increase of 211 per cent. or about 10 per cent. per annum compounded.

Wheat, which continues to furnish the largest tonnage of any single commodity, made an increase of 7.8 per cent. over 1929. Oil gained 55 per cent. and there are also notable increases in iron and steel products, pulp wood, fertilizers, implements, vehicles and parts. Miscellaneous merchandise increased 25 per cent.

The Local Co-operation Clause in Channel Improvements.

When Congress authorises channel improvements, the mandate to the Army Engineers to execute the project is sometimes conditioned upon the satisfactory fulfillment by the local communities of co-operative clauses. Local co-operation at times takes the form of contributions to the cost of the improvement, provision of spoil areas for the disposal of dredged materials, bulkheading of property abutting the channel, or the provision of public wharves.

Most of the channel projects in the main waterways of the Port of New York are of such vital importance to national commerce that no local co-operation is required, but some secondary channels serving local communities have conditions attached to be fulfilled by the communities, or industries, benefiting specifically from the improvement. The Rivers and Harbours Bill, signed by President Hoover on July 3rd, 1930, authorised twelve channel improvements in the Port of New York, of which four carried local co-operation clauses.

The Washington Canal and South River, New Jersey, project stipulates that local interests must dredge a channel 12-ft. deep and generally 150-ft. wide between the Highway Bridge at South River and Old Bridge, also that all rights of way and necessary disposal areas shall be furnished to the Federal government free of charge. The local interests have been working on the satisfaction of the local co-operation clause and it is expected that the requirements of the Army Chief of Engineers will be met shortly, and that Federal funds, already allotted by the Chief of Engineers will be applied to this project. With the improvement of this channel transportation costs will be materially reduced and an estimated saving of not less than 25 cents per ton is possible. During the year 1929, 170,191 tons were handled. The estimated cost to the government is $90,000.

The Port Chester Harbour, New York, project provides that local interests contribute $5,500 in cash as their share of the improvement. Delay in turning the above sum over to the District Engineers is holding up this improvement as Federal funds cannot be appropriated until the local co-operation clause is satisfied. The Board of Engineers for Rivers and Harbours stated in their report that the existing channel facilities were insufficient to provide for the large commerce handled without undue congestion. During the year 1929, 450,000 tons were handled. The estimated cost to the government for this improvement is $44,500.

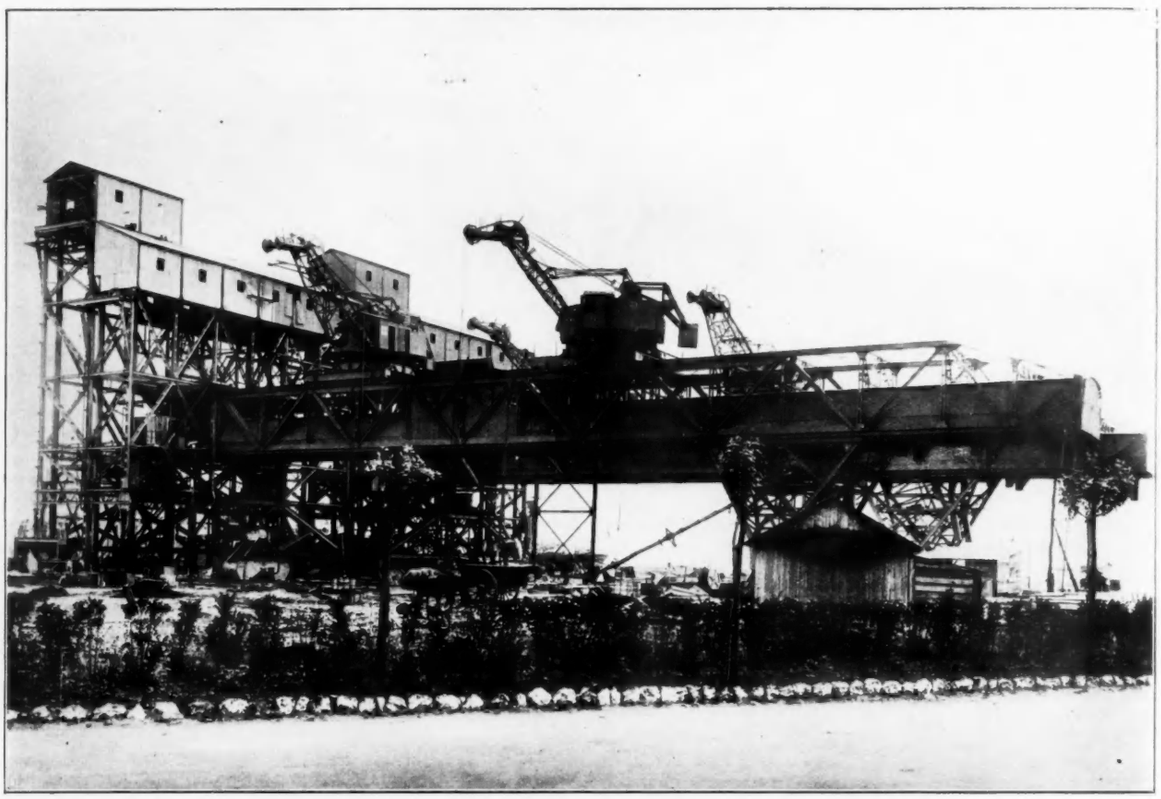
The Manhasset Bay, New York, project is subject to the provision that local interests contribute $50,000 to the first cost and furnish free of charge to the United States Government suitable disposal areas properly dyked or bulk-headed where necessary. A saving of at least 20 cents per ton in transportation charges is possible when the channel improvement is completed. During the year 1929, 176,217 tons were handled on this waterway. The estimated cost to the government for the improvement is $63,000.

The East Chester Creek, New York, improvement is held up until such time as the local interests furnish, without cost to the government, necessary rights of way and spoil disposal areas and shall give assurances satisfactory to the Secretary of War and the Chief of Engineers that they will dredge to a depth of 8-ft. the large ship located about 200-ft. above the Boston Post Road Bridge and the Y-shaped extension of the waterway above the terminus of the existing project. The Chief of Engineers, in making his recommendation to the Rivers and Harbours Committee, estimated that a channel 8-ft. deep would make possible a saving of about 11.6 cents per ton in transportation costs. The number of tons handled during the year 1929 was 796,458. The estimated cost to the United States Government for this improvement is $283,000.

Funds for the Kustenkanal.

The Reichstag has granted the Rm. 2,000,000 requested by the Reichs Traffic Ministry for further work on the Kustenkanal, to be laid out in the manner previously reported, i.e., principally for the canal from Ledelsburg to Goldfischdever.

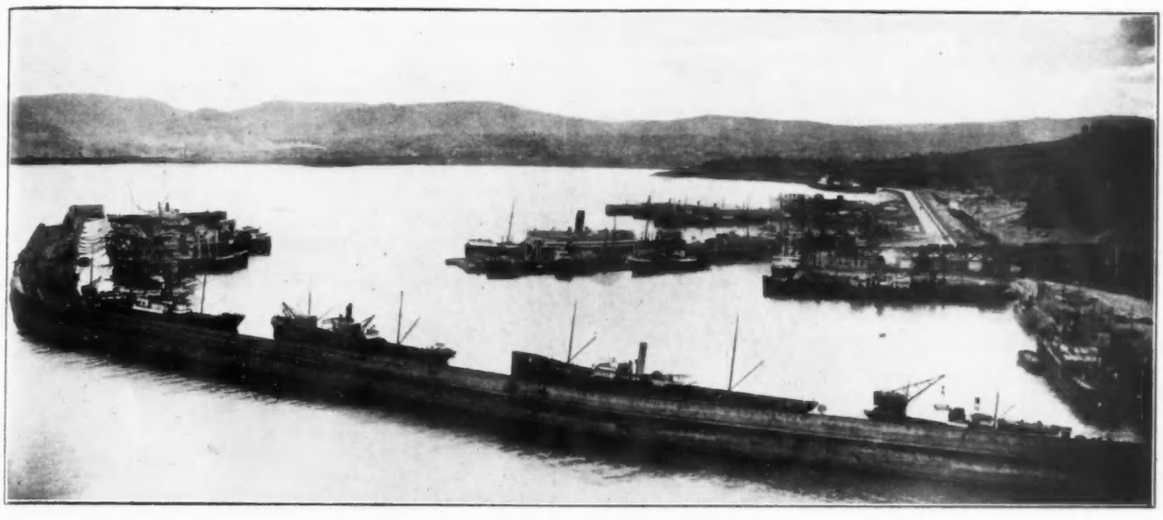
Port of Musel



No. 3. Installation for Coal Shipping, which has a working capacity of 1,000 tons per hour.

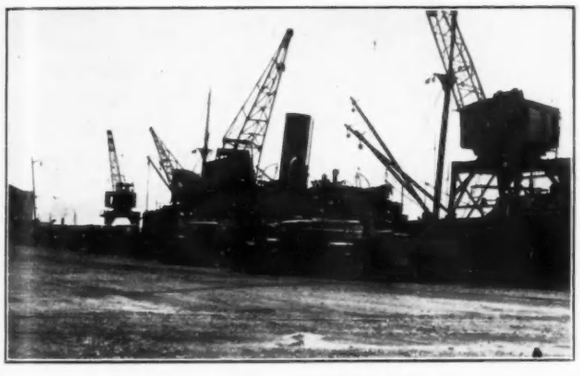
No. 4. Cranes for lifting 11-ton Wagons.

The Port of Musel



General View of the Port of Musel.

THE Port of Musel is situated on the North Coast of Spain, in the Bay of Gijon. In earlier times, before the port was constructed, Musel was a good and safe coastal anchorage, being sheltered by both the Cape of Peñas and of Torres.



No. 6. Three-ton Electric Cranes.

The construction began in the year 1895. Then, the first idea regarding the port was to provide a shelter where entrance always would be possible, placed between the northern Cape of Peñas and the coast of France, in order to have a refuge port for the sailing ships during the heavy gales from the north. Afterwards, the port was used chiefly for the coal trade. The general trade is also showing vast improvement now.

The enlargements projected and approved are shown in red on the Supplement.

The Trade.

The development of the trade is very recent. Comparing the weight of goods moved through the port, Musel is the fourth port of Spain, after Barcelona, Bilbao and Huelva.

The main trade is the export of coal, which is distributed all around the Peninsula, going principally to Barcelona and Bilbao.

The quantity of goods exported and imported in 1929 is shown in the following table:—

	Tons.
Total export	2,048,235
Total import	531,612
Total	2,579,847

The export trade is therefore nearly four times that of imports and goes to show that Musel is principally an export harbour. The largest proportion of the export trade is coal, which during 1929 reached 1,930,951 tons.

The following figures show the growth of trade:—

Coal export—

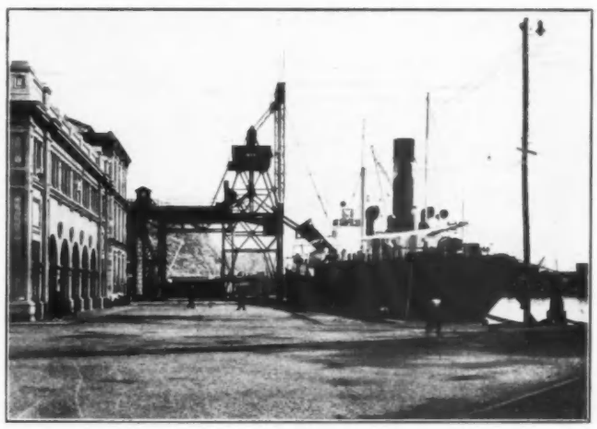
Years.	Tons.	Years.	Tons.
1910 ...	420,000	1922 ...	720,000
1914 ...	600,000	1924 ...	1,200,000
1918 ...	1,080,000	1929 ...	1,930,000

General trade: coal excepted—

Years.	Tons.	Years.	Tons.
1920 ...	240,000	1927 ...	550,000
1923 ...	360,000	1929 ...	650,000
1925 ...	510,000		

The revenue of the port, without any change in the charges, has shown a vast increase since 1922, as will be seen from the following:—

Years.	Millions of Pesetas.	Years.	Millions of Pesetas.
1922 ...	0.9	1926 ...	1.9
1924 ...	1.0	1929 ...	3.3



No. 2. Hoist which handles 2,500 tons daily.

Hoists and Crane Equipment.

There are nine installations for coal shipping. Eight of them are in Musel, and one in the ancient little port of Gijon. Five of them are capable of dealing with 20-ton wagons. As an average each hoist loads 244,000 tons yearly.

The photographs show the hoists and cranes of the port.

No. 1.—Movable hoist capable of shipping 2,200 tons daily.

No. 2.—Hoist that loads 2,500 tons daily.

No. 3.—The biggest building in the port, loading 1,000 tons per hour. This installation was erected in order to avoid the delaying of ships. When the ship comes into port the coal is already prepared and ready to be loaded quickly.

Wagons ascend by lifts to the top, where they are automatically tipped, the coal falling into a hopper, from where it is taken by conveyors which distribute it on the ground under the bridges. There is sufficient space to deposit 50,000 tons. The cranes that are over the bridges take the coal by means of grabs, and deposit it into hoppers; conveyors then take it into the holds of the ships. The bridges extend 170 metres along the quay.

No. 4.—One of the four cranes capable of dealing with 11-ton wagons. This type belongs to the railway of Langreo.

No. 5.—45 tons crane. It deals with the 20-ton wagons. This is the general model of coal wagon.

No. 6.—3 tons electric crane. There are 14 electric cranes. One of them is of 8 tons, and 13 of 3 tons. During next year five new electric cranes will be installed.

Port of Musel—continued

In addition there are seven steam cranes—one of 15 tons, one of 10 tons, three of 3 tons and two of 2 tons.

Railways.

The port of Musel is served by the following railways:—The Northern Co., which is the general railway of Spain. The Langreo Co. (track 1.44 metres), which connects the port with the most important coal-producing field of Spain. This railway was one of the first to be constructed in Spain. The narrow railway of Carreño, and the railway of Ferrol to Gijon, which is now under construction. On the quays of the port there are 16 kilometres of permanent way.

Some Points of Interest.

There are only two kilometres of quay. Each lineal metre has a trade of 1,250 tons yearly.

The least depth of water under the lowest low spring tide is 7.5 metres (25-ft.). For a distance of 1,400 metres of quay the least depth is 27-ft. For 1,000 metres the least depth is more than 40-ft. The greatest depth in the port reaches 53-ft.

During the year 1929, 2,129 vessels called at the port to discharge goods and 3,004 left with goods loaded. The packet boats going to America touch at Musel.

It is hoped that when the projects in hand have been completed Musel will be one of the important ports of Europe.

Hull and the Humber

Humber Bridge Bill: Working Model of Proposed New Bridge and Section of Humber Constructed.

SIR CYRIL KIRKPATRICK, Consulting Engineer to the promoters of the Humber Bridge Bill now before Parliament, wrote to the Humber Conservancy asking to be informed as to the works at Trent Falls and it was agreed that he be supplied with a copy of the report by the engineer and that he be informed that a new flood bank has been constructed by the Aire and Calder Navigation at the corner between the Humber and the Trent. The Humber Bridge Bill is to first come before a committee of the House of Commons the members of which are Mr. William Raynes, who will preside, Captain Gunston, Mr. James Walker and Sir Julius Ferguson. The promotion of the Bill will involve the Hull Corporation in one of the most important Parliamentary fights it has been engaged in for many years. As already reported in these columns there is a formidable opposition composed of various river, shipping and commercial interests, but the Corporation, it is asserted, feels secure in the presentation of its case for the bridge. Sir Leslie Scott, K.C., is the leader of counsel engaged by the Hull Corporation and recently visited Manchester in company with some of its Hull officials for the purpose of viewing a working model of the proposed new bridge and of a section of the Humber that has been constructed at the instigation of the promoters of the bill in order to demonstrate conclusively the effect the bridge would have on the navigable channel of the River Humber. Sir Leslie Scott has also visited Hull and inspected the site of the proposed works.

Considerable importance is attached to the model which can be worked to show in miniature exactly the effect upon the river. It has been constructed by the Engineering Department of the Manchester University at a cost of about £1,600. It is between 30 and 40-ft. in length and is worked electrically. The model has been built to scale and reproduces exactly the natural features and conditions as at present exist in the upper and lower reaches of the Estuary of the Humber. All the works in the river are represented, including Saltend, the " fish tail " training walls at the junction of the Ouse and Trent, etc. Actual samples of mud, silt, sand and water have been procured in situ and analysed with the object of reproducing in the model corresponding natural features; and all the elements such as rains, winds and tides are capable of being created by artificial means. In order to prove its value the model has been subjected to a series of practical tests by running it for certain periods corresponding to certain definite periods in the life of the river of ten years each. One week's operation represents ten years. The model is also so geared that in 28 days all tides are represented from spring to neap tides. The rivers which empty into the Humber are reflected as well as the normal and abnormal flows of the river itself and the quantity and carrying force of the silt. Actual records and data being available for these ten-year periods it has been possible to check and compare the results obtained in the working of the model with the authentic records and it is stated that tested in this way the model has proved absolutely accurate. These tests of reliability having been so successful, a number of experiments are being carried out with a view of ascertaining what is likely to be the behaviour of the river in the event of the proposed Humber Bridge with its piers being constructed. During one week the model is worked without the bridge in position and during the next week it is worked with the bridge in position and in this way it is hoped to gain some idea of the probable effect if any of the piers on the river bed and on the navigable channel. The experiment embarked upon by the promoters of the Bill is by no means rash, but is one of the extraordinary efforts now being made by them to explore every channel of information so that shipping to and from Hull will not be jeopardised. It may be of interest to add that it was known that two other similar models were in existence and had been used in connection with schemes for the River Mersey and the River Severn and it was thought that such a model could be prepared with advantage for the Humber in order to assist the committee of Parliament having to hear the case for and against the proposals.

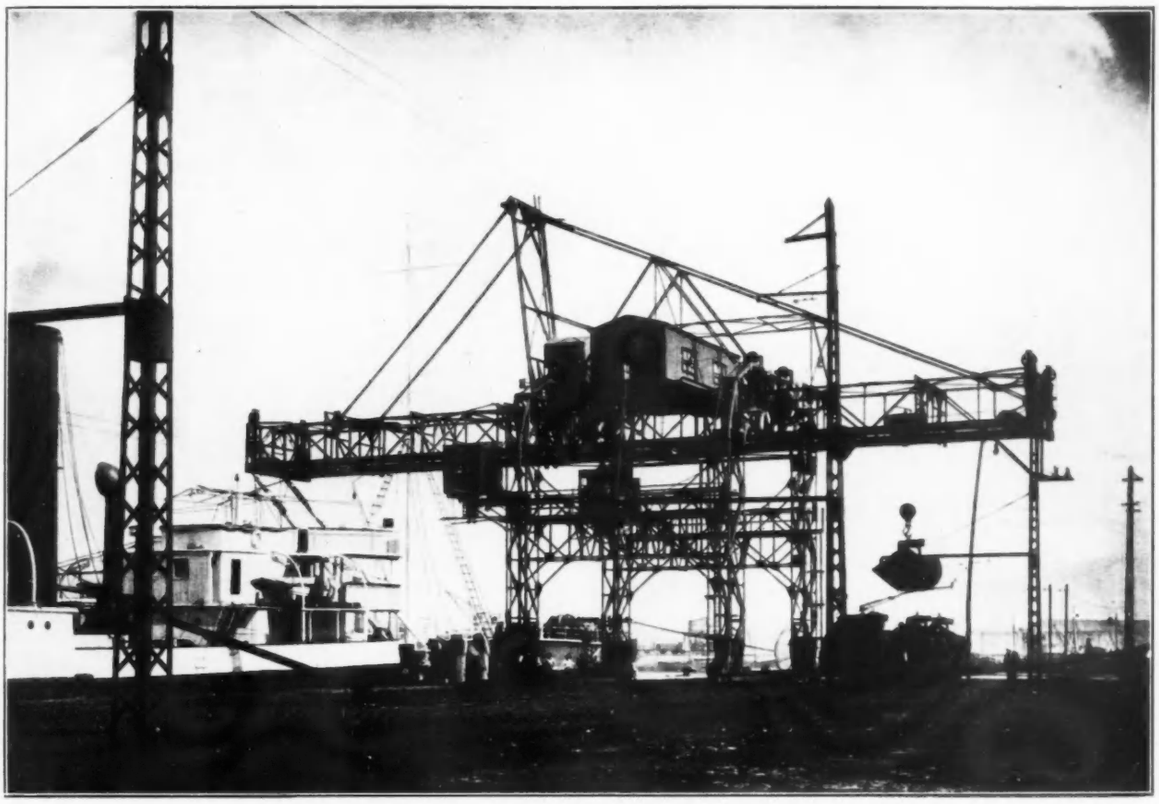
Payment for River Improvement Works Queried.

The question of payments in respect of river improvement works at Trent Falls, at the confluence of the Ouse and Trent was again before the Humber Conservancy Board at their most recent meeting. Mr. W. Minnitt Good repeated his question as to whether the Board's Engineer was satisfied that the first instalment paid and the second instalment proposed to be paid to the Aire and Calder Navigation represented the full progress of the works and whether the original estimate of the cost was likely to be exceeded or not. The chairman (Mr. J. H. Fisher, J.P.), said that he objected to asking the engineer to reply to the second part of the question because the ultimate cost of the works had nothing to do with the Board. By Act of Parliament the contribution of the Humber Conservancy was strictly limited to £76,000, and the Aire and Calder Navigation had undertaken to carry out the whole of the works within a certain period. The Board, he added, were bound by the terms of the Act to pay their contribution towards the cost as the works proceeded upon the certificate of the engineer that certain work had been completed and that a certain amount of money was due from the Conservancy. The Board's payments were in accordance with the agreement and he thought it unwise to press the question as to the ultimate cost. It was not for their engineer to express an opinion as to the ultimate cost; that was a question entirely for the Aire and Calder Navigation. Mr. Good asked whether the engineer's certificate was to bear no relation to the progress of the work. Some of the men going up and down the river seemed to think that it was going to be a lifetime's work. Were the Board's payments pro rata to the progress of the work? The chairman replied that they were pro rata to the progress; not pro rata to the ultimate cost. The payments were being made in accordance with the terms of the Act of Parliament. Mr. Good suggested that the engineer should be instructed to give a report on the progress of the work, but the chairman declined to accept it. After the meeting had been declared closed Mr. Good said he wished to give notice that he would again raise the question at the next meeting as to the progress of the work as it might have a distinct bearing on the navigable channel of Hull. The minutes of the Finance Committee contained a recommendation that £10,812, the amount of costs, charges and expenses incurred by the Board during 1930 in connection with that part of the training walls at Trent Falls, which is within the jurisdiction of the Humber Conservancy, be paid. A first instalment of £21,897 was paid a year ago. The recommendation was approved.

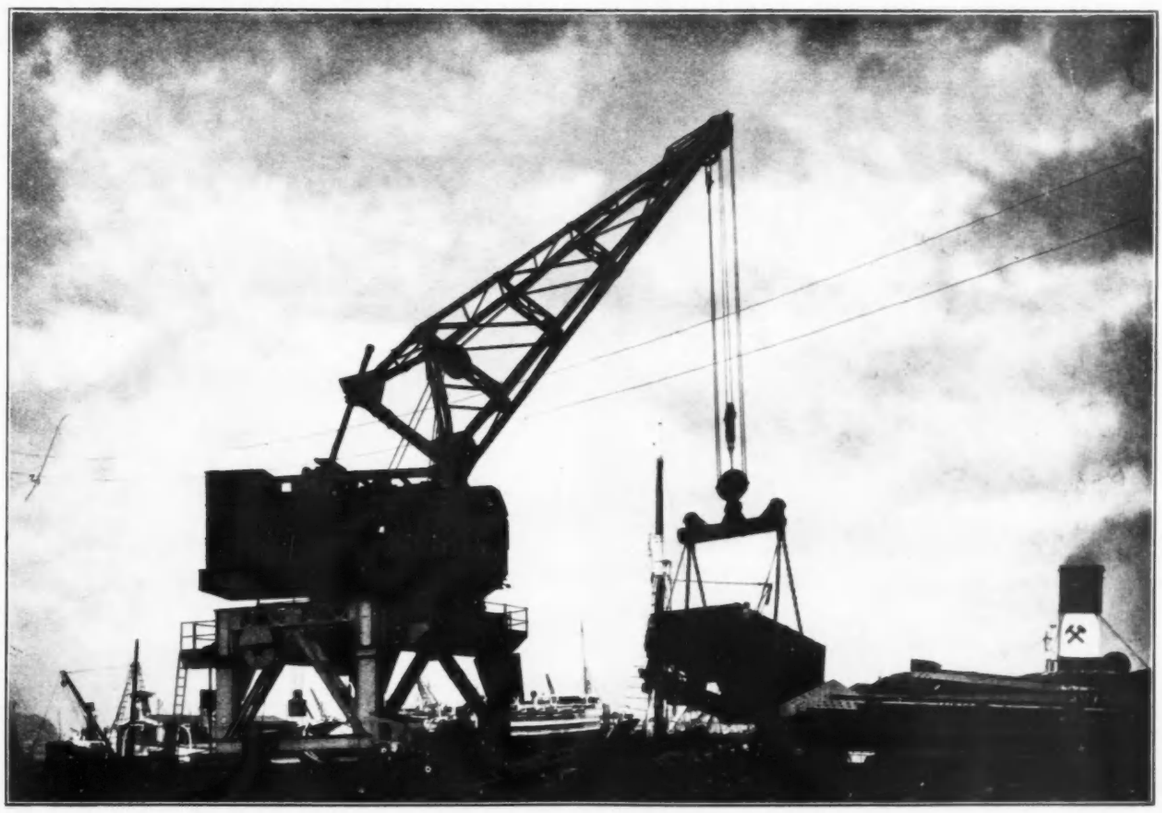
Reconstruction of New Fish Market Proceeding Satisfactorily

Work is proceeding apace at the reconstruction of the new fish market at St. Andrew's Dock. In addition to this, other works, including improved coal sidings and appliances, are in hand. In the first three months of the year there has been a decrease of upwards of 100,000 tons in the quantity of coal exported abroad, but shipments, coastwise and as bunkers have about maintained recent level. On the other hand there has been a substantial advance in the import trade arrivals of wheat and kindred cereals during the quarter exceeding 300,000 tons or 89,500 tons more than in the corresponding period last year and oil seeds, nuts and kernels 186,000 tons or 45,000 tons advance. Imports of timber are slightly behind, but are expected to recover in view of the pending opening of the season for which increased storage space at the Victoria Dock has been provided.

Port of Musel



No. 1. Movable Hoist, which handles 2,200 tons daily.



No. 5. A 45-ton Crane. It is lifting a 20-ton Wagon.

North-East Coast Notes.

Changes in Membership.

THE vacancy in connection with the representation of ship-owners on the Tyne Improvement Commission caused by the death of Mr. Robert J. Thompson has been filled by the election of Mr. Henry Armstrong, secretary of the Tyne-Tees Shipping Co., Ltd., also a director of the Free Trade Wharf Company, Ltd., a director of the British Steamship Short Trades Association, and secretary of the Quayside Transport Employers' Committee, Newcastle.

Owing to the state of his health and advancing years Mr. J. E. Tully has intimated his desire to retire from the position of a traders' representative on the Commission. He was elected a member in February, 1903, and for many years has been chairman of the Piers Committee.

Coal Trade Hustle.

A striking example of the modern methods of dispatch in the coal trade was given in the performance of the Hamburg steamer " Lotti " has just been reported. At 6 p.m. on March 5th the " Lotti " left Cuxhaven and had crossed the Tyne Bar by 8 p.m. next evening. On the afternoon of March 7th, she took aboard bunkers and 2,600 tons of coal and shortly after 6 p.m. had again crossed the Bar for Hamburg. She arrived there on the 9th, had discharged by midnight and was prepared for another trip. It will be remembered that from Cuxhaven to Shields is 420 miles.

Two other instances of quick loading are reported from the North-East Coast. The steamer " Consett " arrived at Tyne Dock at 1.15 a.m., began discharge of 1,864 tons of iron ore at 1.45 a.m., finished at 3.15 p.m., and the vessel left the dock at 5.40 p.m. the same day after loading 155 tons of bunker coal. The steamer " Helmwood " took in a cargo of 3,168 tons of coal in 8 hours and 5 minutes at the Wearmouth Colliery Staiths, Sunderland.

Coal Trade Statistics.

It was reported at the March meeting of the Blyth Harbour Commissioners that the coal shipments for the first two months of the year at 742,633 tons, showed a decrease of 19 per cent. on 1930, and 3 per cent. on the figures for 1913.

The trade returns for the Wear for the first two months of this year still show small declines. The coal shipments (including bunkers) totalled 800,528 tons compared with 855,463 tons last year, a decrease of 6.4 per cent. The coke shipments were 19,950 tons, 51 per cent. increase on 1930. Other exports totalled 10,468 tons, compared with 13,959 tons last year. The imports were:—

	1931		1930
Timber ...	Loads 6,360	against	Loads 15,493
Grain ...	Qrs. 2,396	,,	Qrs. 1,761
Esparto ...	Tons 1,200	,,	Tons 2,338
Iron Ore ...	13,228	,,	12,780
Cement ...	1,856	,,	1,909
Petroleum ...	16,683	,,	15,761
Wood Pulp ...	552	,,	1,904
Iron and Steel	1,504	,,	3,246
Sundries ...	7,651	,,	6,142

Tees-side Trade.

There is still no improvement in the shipment of iron and steel from the Tees. In March only 7,258 tons were shipped from the Tees, compared with 11,380 tons in February, and 14,222 tons in January. Of last month's total 4,282 tons were dispatched coastwise, leaving only 2,976 tons for the export trade. The highest shipment of pig-iron to a foreign country was 800 tons which went to Italy, Japan took 450 tons, Denmark took 445 tons, Germany 355 tons, France 340 tons, and Belgium 220 tons. In contrast with the small returns of pig-iron shipments there was some expansion in the amount of manufactured iron and steel shipped in March. Last month 44,122 tons left the Tees ports against 31,357 tons in February. Only 25,767 tons went overseas, a totally inadequate tonnage if local works are to secure regular employment. The principal shipments of steel were 6,788 tons to South Africa and 5,139 tons to India. Other clearances included: Argentine 1,824 tons, Gold Coast 1,152 tons, Kenya 2,935 tons, Northern Rhodesia 1,010 tons, Portuguese East Africa 1,949 tons, Southern Rhodesia 1,123 tons. The imports of iron and steel into the Tees totalled 10,361 tons compared with 13,994 tons in March, 1930, and 8,997 tons in 1914.

End of a Long Service.

At the April meeting of the Tees Conservancy Commission Mr. J. H. Amos resigned his post as general manager. In his letter of resignation, Mr. Amos reminded the Board that he had been in the service of the Commission for 44 years. He was appointed on February 7th, 1887, and during the whole of that period he had always been on the most cordial relations with his employers, and received great kindness and consideration from them, especially from the chairman, Sir Hugh Bell. It was therefore with the greatest regret that because of advancing years and on medical advice he thought it wisest to relinquish his connection with the Commission.

Sir Hugh Bell, who presided, said they all regretted that the time had come when Mr. Amos felt that he must cease his connection with the Commission. From the very first Mr. Amos had thrown himself into the job of mastering all the intricate business connected with the Commission and achieved the greatest success. Mr. Amos suitably replied.

Mr. Amos is to continue to place his long experience at the disposal of the Commissioners in a consultative capacity.

The Commissioners afterwards determined to appoint as Mr. Amos' successor, Alderman F. T. Nattrass, Mayor of Stockton, and a member of the Commission. The terms of appointment are to be submitted to and settled by the Commission at a subsequent meeting.

April Meeting of the Tyne Improvement Commission.

Sir Arthur Sutherland, who presided at the April meeting of the Tyne Improvement Commission, declared he saw a few gleams of sunshine in the trade outlook, and he mentioned that a hundred vessels had been chartered during the last few days to go in ballast to the Plate and Montreal for the wheat trade. That, he said, would relieve some of their congested buoys, and it would also create some demand for bunker coals which would be welcome trade for the river. It is understood that probably some twenty vessels will leave the Tyne for this purpose.

It was reported that during the first three months of the year nine vessels had been launched of 50,623 gross tons, a decrease of 20,168 gross tons compared with last year. Idle tonnage in the river still continued to increase, the figures at the end of last March being 134 vessels of 242,280 tons net register, compared with 122 vessels of 215,582 tons last month, and 105 vessels of 189,543 tons at the end of last March.

There was a drop of nearly 20 per cent. in the coal and coke shipments from the Tyne during the first quarter of the year when compared with 1930. The three months' shipments totalled 3,792,082 tons against 4,728,491 tons in the first quarter of 1930. The imports of petroleum spirit in bulk totalled 10,485 tons in the past quarter, an increase of 3,990 tons on the same period of last year. There was a rather big decrease in the quantity of oil fuel shipped as bunkers, for in the past three months only 11,622 tons were taken compared with 17,984 tons in the same period of 1930.

Personalia.

The death in March of Sir Archibald J. C. Ross, K.B.E., removed one of Tyneside's most prominent engineers. He commenced his apprenticeship with R. and W. Hawthorn Leslie and Co., of Newcastle, in 1885, and a quarter-of-a-century later was appointed a director. In 1913, he was appointed managing director of the Marine Engine works. He was associated with the North-East Coast Engineering Employers' Association and the Engineering and Allied Employers' National Federation.

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Death also removed during the month Mr. Robert J. Thompson, a former director of Furness, Withy and Co., Ltd. Mr. Thompson was very well known in business circles on Newcastle Quayside, and acted as Consul in Newcastle for Rumania. He was born at West Hartlepool in 1867, and entered the service of the late Mr. C. Furness at the age of 14, as an office boy, and served with the firm of Furness, Withy and Co., for 48 years. He was a director of the Tyne-Tees Steam Shipping Co., Ltd., the Free Trade Wharf Company, Ltd., and the North of England Protection and Indemnity Association.

* * * *

Much satisfaction was expressed on Newcastle Quayside at the appointment of Lord Hyndley as a director of the Bank of England. As Mr. John Scott Hindley—he changed his surname to Hyndley when he was raised to the Peerage in the last New Year Honours—he began his business career on the Newcastle Commercial Exchange, in the Chartering Department of Westoll and Co., Ltd., shipowners, Sunderland. Subsequently he became identified with Mr. James Stevenson, of Stettin, and this connection led to the formation of the Anglo-Continental Association, which established a branch in Newcastle, and Mr. Hindley, as he was then, took charge.

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Mr. E. Graham, works manager of the Furness Shipbuilding Co., Ltd., has been appointed general manager of Irvines Shipbuilding and Dry Dock Co. (1930), Ltd. Mr. Graham commenced his career with the Northumberland Shipbuilding Co., Ltd., and rose to the position of assistant shipyard manager. In 1914, he was appointed works manager of the New Waterway Shipbuilding Co., Ltd., Schiedam.

Notes from the North

Four New Bridges for Birkenhead.

REPRESENTATIONS are being made to the Mersey Docks and Harbour Board by the Birkenhead Chamber of Commerce concerning the reconstruction of the four bridges across the docks between Birkenhead and Wallasey. It is contended that the bridges should be made toll free. Recently the Dock Board called a meeting of interested parties and explained what they contemplated doing. The work is now about to be started and traffic will be confined to one side of the bridges. While the eastern side of the bridges is closed, traffic will be worked over the western side and will be relieved as much as possible by means of Duke Street. The Dock Board has been asked if there is a possibility of their reconsidering their recent action and making the Poulton Bridge free once more, but have intimated that they cannot see their way clear to do this at the moment. By the end of June the new coal elevator at Birkenhead will be working and this will throw a considerable increase of rail traffic on to the Duke Street bridge. After about three or four months the bridges will "turn over" and the traffic will be diverted to the eastern side while the western side is closed. Then for some period, the whole of the bridges will be open for traffic until the erection of the bridges is completed when there will be a total cessation of traffic for one month while the old bridges are taken away and the new bridges placed in position.

Mersey Tunnel Progress.

The Mersey Tunnel Joint Committee reports a steady advance towards completion of the tunnel. Under the river the placing of the cast-iron segments has reached 98.4 per cent. of the whole. On the Birkenhead side, underground tunnelling has been completed, the concrete roadway is practically finished and a commencement has been made with the concrete filling of the segments. Very similar is the state of the work on the Liverpool side. The men engaged number 810. The contractors are now proceeding with the construction of the connections between the shafts and the tunnel for the purpose of ventilation, according to the system decided upon recently as the result of experiments.

New Pilotage Conditions.

Mersey Docks and Harbour Board has adopted the recommendation of the Pilotage Committee regarding the necessity of candidates for a pilot's licence being in possession of a second mate's foreign certificate. This has been the custom since 1925 and the Board of Trade now wishes it to be formally put into the bye-laws.

At the meeting of the Board on April 16th, Mr. H. F. Fernie, in moving the adoption of the minutes of the Works Committee, said there had been negotiations between the Overhead Railway Company and the Board for a considerable time, with regard to the strengthening of the overhead bridge at the Stanley Dock. The result was that they had agreed that this must be carried out, especially as under the new electricity scheme the bridge would be used by 40-ton coal wagons, as against 12-ton wagons.

The following tenders were accepted:—Sheet lead, Quirk, Barton and Burns (St. Helen's), Ltd.; steel channels, etc., Thomas James and Co.; steelwork for sheds, Clarence Dock, Pearson and Knowles Engineering Co., Ltd., and Stanley Dock Swing Bridge, Francis Morton and Co., Ltd.

Coaling Plant.

In all ports where coal is shipped abroad, there is need for handling plant which will enable the fuel to be transferred into the bunkers without excessive breakage. A new belt conveyor is in course of erection at Birkenhead and in connection with this the coal trade expressed the desire for an anti-breaker. Mr. Norfolk, the engineer-in-chief of the Mersey Docks and Harbour Board, has met the wishes of the trade by adding to the new plant a swivelling shute of about 10-ft. with a view to avoiding the long drop and preventing breaking. There is, therefore, every reason for believing that when the new conveyor is in use, it will give all-round satisfaction.

Improved Cargo Handling Device.

Mr. John Magee, of Birkenhead, a hatch foreman in the service of Messrs. Alfred Holt and Co., shipowners, has invented a device for the purpose of giving additional safety and facility in changing the position of a derrick engaged in loading or unloading cargo. The invention which is regarded with favour by dock cargo workers, is claimed to be a great improvement upon the chain or rope "stop" now in common vogue and likely to obviate accidents which occur occasionally by the present type of gear.

Interesting Stockport Proposal.

An interesting scheme for covering over part of the River Mersey at Stockport has been sanctioned by the Town Council which is seeking powers to borrow £30,000 for the Mersey Square section of the scheme. It is intended to provide a new road which will be one of the finest in the town over the Mersey from Mersey Bridge to Lancashire Bridge.

Mersey Embankment Crash.

An unusual accident with unfortunately fatal results, occurred on the new Mersey embankment works at Aigburth recently. A light engine, which plies between the concrete mixer at the end of a promontory jutting out in the Mersey, and the block yard about 100 yards away, crashed through the stop block at the end of the line beneath the concrete mixer and toppled down the promontory bank—about 15-ft. deep—into the Mersey below. The driver was killed, but his mate when he saw that disaster was inevitable, jumped clear just in time. A second later and the engine had toppled over the bank. The first warning of the disaster was given to the men working at the top of the concrete mixer by the crash of the falling engine. Immediately men came running to the spot from all parts of the workings. A corner of the engine could just be seen sticking out of the water. A huge crane was immediately swung round to haul out the engine from the river.

Model of Mersey Tunnel.

Built at a cost of about £1,000, the working large scale model of the Mersey Tunnel is on view at one of the leading Liverpool stores. The model brings within some 15-ft. or so, the whole 2.16 miles of the tunnel's through length. The bore in the model is about a couple of inches. It gives a view of the tunnel at a glance. Made perfectly to a scale of one forty-second of an inch to a foot, the upper view of the model shows a correct lay-out of the whole areas of Liverpool and Birkenhead affected by the tunnel, the course of the boring beneath the Mersey being traced by an illuminated line. From a lower level, the spectator sees the tunnel in "section." In an endless band, tiny vehicles race through the under-river boring to emerge at the Liverpool Old Haymarket or at Chester Street, Birkenhead, and return to the bowels of the earth after completing a circuit of the respective entrance sites. The kinds of material through which the tunnel passes are indicated in different colourings. There is an average thickness of solid rock, it is shown, of 20-ft. above the tunnel; above that is gravel and clay of a thickness of 5 to 10-ft.; above that, again, the bed of the river, and then the river itself. The model was made by Messrs. Partridges, Ltd., of London, with the permission and under the supervision of the Mersey Tunnel Committee. It gives a view, impossible to attain by other means, of the whole working of the tunnel.

Coast Erosion Troubles.

Coast erosion continues to give trouble on the Blundellsands side of the River Mersey. In order to maintain the existing coastline, black slag from a Bootle tin works has been tipped on the shore and this apparently has been effective, but where tipping has not taken place, portions of the land have collapsed into the water. A new trouble, however, has developed owing to the slag breaking away at the edges and strewing itself over the shore especially after high tides. It would seem that unless the slag embankment is faced with concrete or stone as the work proceeds, it will be largely discounted by gales and high tide. Even if the embankment is saved from gradual destruction by facing it, it does not solve the bigger problem of the coast erosion, nor avert the possibility of the sands from Hightown to Waterloo becoming an unhealthy mudbank. The only practical remedy for all erosion troubles and incidentally a vast saving in dredging by the Dock Board, is the diversion of the Alt this summer. The Alt Catchment Board, formed under the 1930 Land Drainage Act, is considering the matter and may make a decision shortly. According to Sir George Etherton, clerk to the Lancashire County Council, various reports have been obtained from engineers and they are more or less in agreement on method, but they differ on the cost of diverting the Alt. One firm has put the cost at £180,000 and another at £50,000. Thousands of tons of tin slag have already been tipped on the shore and it has had a good checking effect, whereas parts of the coast not yet protected, have lost land to the extent of about 8-ft. inwards through the recent high tides. The slag tipping has been in progress for about 10 months, but the contract has another 12 years to run. What the Alt Catchment Board is considering at the moment is the giving of instructions to a firm of engineers experienced in drainage and coast erosion works to prepare the necessary plans to enable the Catchment Board to invite tenders and ascertain what the actual cost would be.

Notes from the North– continued

Bromborough Dock Opening Ceremony.

" To-day's ceremony has witnessed the completion of an enterprise which has taken many years to carry out," said Lord Leverhulme at the opening, on April 17th, of the new £1,000,000 Bromborough Dock on the River Mersey. " To find the first origins of the present development at Bromborough," he said, " we must go back to the year 1904, when my father purchased 800 acres of land along the shore of the River Mersey, thereby laying the foundations of what is now known as Bromborough Port. The idea of constructing a deep-water dock was present in my father's mind many years ago. The work was actually begun a few months before his death, and had he lived to see it completed he would, I am sure, have seen in the finished undertaking, ample justification for his earlier faith in its ultimate success. As, year by year, the traffic entering and leaving the dock grows in volume, and as the industrial enterprises depending upon it increase in size and number, the dock will become more and more a monument to the far-seeing vision of our late Chairman."

The dock was declared open by Mr. William Graham, President of the Board of Trade, who received the various officials connected with the dock, its construction and management, including Lever Bros. Dock Committee, Mr. C. W. Barnish (Chairman), Mr. Clement Davies, Mr. Donald Van Den Bergh, Mr. J. L. Simpson, General Long, Dr. Clarke, Mr. P. Courtney (Secretary); Consulting Engineers for the dock, Colonel Barry, Mr. Du Cane, Mr. Scott, Mr. Kuhl, Mr. Cruttwell, Capt. A. M. Holbein; Port Sunlight Managers' Committee, Mr. Huffam, Mr. Anderson, Mr. Swindlehurst, Mr. Lawman, Mr. Arnold, Mr. Oldfield (Secretary); Port Sunlight Managers connected with the dock, Mr. Lissenden, Mr. Wright, Mr. Devey. At the Dock: Mr. C. B. Burgess (foreman electrician), Mr. A. Boer (dredging master), Mr. B. E. Fenwick (chief cost clerk), Mr. J. Francis (chief timekeeper), Mr. M. Ibbotson (storekeeper), Mr. P. J. Gibbons (resident engineers' secretary), Mr. A. B. Trott (cashier), Mr. Griffiths (general foreman), Mr. Caswell (foreman carpenter), Mr. Trebilcock (foreman mason), Mr. Buttery (foreman fitter), Mr. J. Harris (slasher), Mr. J. Barkhouse (foreman erector of Messrs. Vickers-Armstrong Ltd.).

Liverpool Tidal Institute.

Liverpool Observatory and Tidal Institute in their annual report record that during 1930, seventy-one sets of tidal predictions, computed on the institute's complicated tide-predicting machines, were prepared for the Admiralty and authorities in many parts of the world. Analyses of tidal currents in Canadian water have been continued and the comparisons between predictions and observations of slack water times appear to be very satisfactory.

Tiles for Tunnel Work.

Quite an interesting controversy has broken loose since the Mersey Tunnel Joint Committee has decided to finish off the interior walls of the tunnel with smooth tiles to a height of 9-ft. from the road level, which it is estimated, will save between £3,000 and £5,000 per annum on painting. Of course there are plenty of good examples of tile work in tunnels, for instance the Blackwall Tunnel which was opened in 1908 and where the tiles are said to be as good as ever. Paint has been tried in the London tubes, but later tiles were adopted because the first cost is the last, and if paint were used, workmen would never be out of the tunnel. Nothing looks worse after the smallest leak than paint, and even if the tunnel is bone dry from outside, the " sweating " almost inevitable in an underground tunnel, ruins paint. It has been estimated that the initial cost of painting the Mersey Tunnel would be roughly £70,000 and tiling and concreting is going to cost about £250,000.

Painting experts point out that the Mersey Tunnel is bound to leak to some extent, and if tiling is carried out it may be necessary to pull down hundreds of pounds worth of tiles to reach the leak. If the ironwork is covered with concrete, there is bound to be wholesale corrosion, whereas paint will protect the ironwork far more effectively.

Big Dry Docking Job.

The task of dry-docking the giant new Canadian Pacific liner " Empress of Britain " for hull scraping and painting at Gladstone Dock, Liverpool, recently, was a masterly performance. The ship which has cost £3,000,000, has a length of 758-ft., a beam of 97-ft. 6-in. and a gross register of 42,500 tons. She passed quietly and without the slightest fuss or excitement, through the 130-ft. wide outer lock of the Gladstone on her way to the graving dock with its 120-ft. entrance. Within an hour from the time she passed through the locks she was comfortably moored in the centre of the dock, right over the blocks upon which, when the water has been pumped out, her keel reposed in perfect safety and steadiness.

Fog Signals.

Isle of Man Harbour Board contemplates removing the reed fog signal at present erected on Douglas Head, and substituting a sound signal of a different type. The existing signal was erected in 1907 by arrangement and agreement as to management with the Northern Lighthouse Commissioners, the capital cost (£2,500) being met by the Harbour Commissioners who also assumed responsibility for the cost of management and maintenance. Recently a conference was held at Douglas to discuss the supersession of the present reed signal and the whistle on the Victoria Pier, by a signal of diaphone or siren type having a sound radius of three miles to be erected on the seaward end of the Battery Pier and to be sounded at all times of foggy weather.

Giving evidence at an injuiry held by the Harbour Board, Mr. W. H. Blaker (Secretary), said information had been obtained about four kinds of signal—the siren, the diaphone, the typhon whistle and an explosive signal. The typhon whistle is similar to that now used on the Victoria Pier, being simple in operation and with few moving parts. The diaphone was the most clearly heard in the tests and had a very penetrating note, but it was apt to be irritating to visitors. The typhon was the least objectionable, and the most doleful of the lot was the siren, which was in operation at Langness and Maughold. Mr. W. H. Moore, assistant harbourmaster, advocated a signal like that on the Victoria Pier, only more powerful.

The Chairman (Mr. Joseph Qualtrough), made it clear that this signal was intended to be a guide for vessels entering Douglas and not for coastwise traffic. If the Harbour Commissioners attempted to guide coastwise traffic, they would be doing the work of the Northern Lighthouse Commissioners and he refused to undertake any such liability.

After some discussion, the nautical men present agreed that the new signal should be of the typhon whistle type, similar to that on Victoria Pier, only more powerful. They agreed that if it were placed on the Victoria Pier, it could be less strongly built and therefore less expensive and would be easier of control; but in all ports, the signal was placed on the most seaward pier, and this would be the safe course to follow at Douglas. Mr. Blaker suggested the addition to the fog signal of what was called the " talking beacon." Attached to the engine which worked the fog signal was a wireless transmitter which broadcast the sound of the signal, and which could be picked up by any vessel having the ordinary and cheapest type of wireless receiver. If that were fitted with a direction finder, which was a very cheap attachment, a vessel could ascertain the direction from which the signal came. This system was in operation at Cumbrae on the Clyde.

Caernarvon Harbour Trust.

Caernarvon Harbour Trust has had under consideration correspondence which has passed between the Superintendent and Mr. W. Lloyd Williams, general manager of the Dinorwic Quarries, relative to the suggestion made in respect to the electric light at the entrance of the Portdinorwic Dock. A letter from Mr. Lloyd Williams stated that there was no objection to the lamp being lit for the benefit of ships passing up and down the Menai Straits on condition that in the event of the light being extinguished no responsibility rested with him, that the Trust should pay for the light and that adequate remuneration be made to the man having charge of the lamp and that his principal has the right to withdraw the concession on a month's notice being given. The chairman suggested that the reply to the letter should be that as the light would be shown on charts and mariners informed of its existence, one month's notice of withdrawal would be too short.

This was agreed.

Cyprus Harbour Trust.

Sir Lindsay Parkinson and Co., Ltd., contractors of Blackpool, have been successful with their tender of £200,000 in securing the contract for harbour extensions at Famagusta, Cyprus. The work, it is stated, comprises the extension of the existing quay wall, the removal and rebuilding of the existing iron jetty and other works. It is expected that the work, which will be started as soon as possible, will be completed in the spring of 1933. The labour employed on the scheme is to be engaged in the colony. The engineers associated with the extension are Messrs. Coode, Wilson, Mitchell and Vaughan-Lee, of London.

Manchester Ship Canal Traffic.

Traffic receipts of the Manchester Ship Canal Co. for the month of March were approximately £91,891, a decline of £14,968 from February of last year. The total for the first quarter of the year was £279,694, a decrease of £44,010. There were only three months in 1930 and none in 1929 or 1928 in which the total was below £105,000.

Notes from the North—continued

Dock Board Representation.

Birkenhead Corporation Development Committee have passed a resolution expressing the strong opinion that, in the interests of the port, the four Merseyside boroughs should be directly represented on the Dock Board. The committee suggests a meeting of representatives of the councils concerned to consider the steps to be taken to attain this end and also to consider, with a view to helping the industries of the port, pressing upon the Dock Board the desirability of reviewing the whole question of their industrial development policy on Merseyside.

Big Isle of Man Scheme.

In the next two or three years 4,500 or 5,000 solid concrete blocks each weighing about 15 tons, will be made at Douglas, Isle of Man, to form the substance of the 400-ft. wall which is to be thrust into the sea at the entrance to Douglas Harbour, joining up with the reconstructed end of the old pier. The crane for lifting these blocks into position, a Goliath made by Messrs. Stothert and Pitt, Ltd., of Bath, has just been erected. This crane has a gantry or overhead bridge 26-ft. high, a pair of steel legs each standing on a rail track, and a set of steam-driven machinery, which lowers and raises the hook by means of which the freight is lifted. The gantry is capable of gliding up and down the whole length of a railroad 300-ft. long; and the hoisting machinery is capable of sliding to and from across the width of the bridge which is 62-ft. The structure weighs above 50 tons and contains 1,300 separate parts (excluding bolts) which were despatched to Douglas in 51 separate lots. It was designed in such a way that it could be bolted together on the site of erection.

Each of the concrete blocks measures 11-ft. by 4-ft. by 4-ft. 6-in. and two of them make the width of the base of the pier wall. The wall will begin 18-ft. below the water and will rise 31-ft. above, a total of 49-ft. The blocks will be "stepped" so that near the surface there will be very little width of wall, the greater strength being reserved for the bottom where the pressure is greatest. Between the wall, on each side of the pier, there will, of course, be a filling in of rubble. The blocks, having been made in the Harbour Board's yard, will be stacked so as to allow them to mature, and when ready for use will be carried by the crane to the berth on the Battery Pier. They will be transferred by a smaller crane which has a lifting capacity of 20 tons, to the barge "Sirdar" and brought across to the surface of the Red Pier. Another giant crane called the "Hercules" will deal with them there and will deposit them so that they rise from the sea floor.

Break in River Wall.

A break in the marine lake wall which faces the mouth of the River Dee, followed by the collapse of the adjoining length, caused much anxiety, owing to the difficulty of the repair. Work could only be done during the few days the tides were low and as a preliminary, men had to dam the deep channel which the tide passing through the gap, had forced. The lake then had to be pumped dry before the derelict portion could be got out and the foundation of the new part laid.

Rapid Loading.

At Ellesmere Port, where the Manchester Ship Canal Company has installed a coal conveyor plant of the most modern kind, an expeditious piece of work was effected recently, when the s.s. "Egyptian Prince" loaded and trimmed 2,864 tons of coal in 6 hours, an average of 441 tons per hour. The loading was into 5 separate hatches and necessitated the manipulation of 300 wagons.

Cementing Experiment.

One of the contracts in connection with the new Mersey Tunnel is that which is being executed by the Cement Marketing Board. They are now experimenting with a new process invented by Mr. Norman Wrigley for applying cement to iron. The Mersey Tunnel Joint Committee granted permission for the experiments, but it is more or less definite that the new process will not be used for the tunnel workings. The inventor is of the opinion that a means has been discovered of preventing the tendency for cement to crack when it is applied to iron.

Legal Notes: Refusal by Buyers to take Delivery of Goods.

REFUSAL by buyers to take delivery of goods which they allege to be disconform to contract may raise questions of difficulty to others besides the parties immediately concerned, and in so far as these relate to discharge from ship, warehousing, or quayage, harbour authorities may necessarily be involved. In order to prevent such difficulties emerging at all sellers in the timber trade have inserted in their contracts a clause declaring that the buyers shall not be entitled to reject the goods, but must take them up against documents. In a case last year (*Meyer v. Kivisto*) 46 T.L.R. 162, the buyers contended that when they found that part of the goods (timber) was of bad quality, they were entitled to reject the whole contract, but the court held that the clause in the contract prohibiting rejection must be given effect to, and that the buyers were bound to accept the goods, and, if so advised, claim damages in respect of alleged defective quality.

The ground of decision there was that a clause of the kind referred to does not apply to things which are not the goods specified, or to parcels which are not substantially the goods specified. Such things may, notwithstanding the presence of the clause, be rejected in terms of the section. Now in the recent case of *Green v. Arcos, Ltd.* (1931) 47 T.L.R. 262, the point has been again considered. There the buyer bought a quantity of timber to be shipped from Russia, the contract providing that, at sellers' option, the quantity was subject to a variation of 10 per cent. not exceeding 20 standards on any item; and that "buyers shall not reject the goods herein specified, but shall accept or pay for them in terms of contract against shipping documents." When the cargo arrived the buyers found, after allowing for the permitted variation, that in some classes of the timber there had been overshipment, in some classes there had been short shipment, and in some classes there had been no shipment at all. He thereupon rejected the whole of the timber on the ground that the sellers had failed to perform the contract. Mr. Justice Rowlatt held that the clause as to rejection could not prevent rejection where the goods tendered were not the goods specified, and that as in this case the goods tendered were not, in respect of quantity, the goods specified, the clause did not apply and the buyer was entitled to reject.

A case which may usefully be noted here is *Revenue v. Liverpool Grain Storage and Transit Co.* (1931) 47 T.L.R. 37 in which the question was considered whether certain sets of premises situated near the port of Liverpool were "freight—transport hereditaments" within the meaning of that expression in the Rating and Valuation (Apportionment) Act 1928, so as to entitle them to be derated. Under Sec. 5 (1) of that statute the expression "freight—transport hereditaments" is declared to mean (*inter alia*) "a hereditament occupied or used wholly or partly for dock purposes as part of a dock undertaking." "Dock purposes" are defined as "all purposes connected with the shipping or unshipping at a dock." And "Dock Undertaking" is defined as meaning "an undertaking carried on by a dock authority" and also includes "any other undertaking comprising as part thereof a dock, in so far only as its business is carried on as and in connection with that dock."

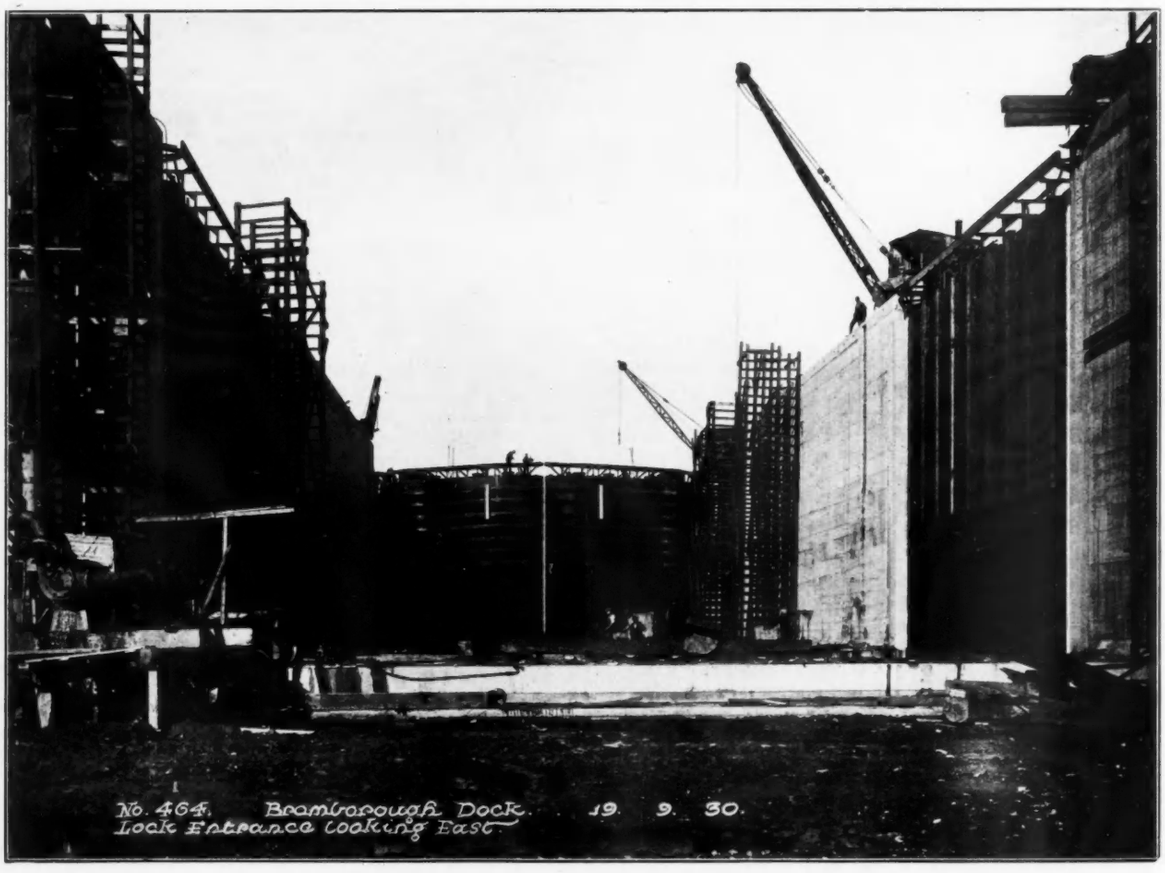
Section 6 (3) (b) of the statute further provides that to determine in what proportions a freight transport hereditament was occupied and used for transport purposes and for other purposes respectively—"no part of a dock undertaking being a building, yard, or other place, primarily occupied and used for warehousing merchandise, not in the course of being transported, shall be deemed to be occupied and used for transport purposes."

The case last referred to was one of seven appeals in which the effect of the foregoing provisions was argued. On the one hand, it was contended that the hereditament in each case was under Section 5 (1) *(c)* of the Act occupied and used for dock purposes as part of a dock undertaking connected with the shipping or unshipping of merchandise. On the other side it was argued that in each case the unshipment of the goods was complete before they entered the hereditament and therefore that the hereditament could not be a freight transport hereditament. Alternatively it was said that under Section 6 (3) (b) every part of each hereditament was primarily occupied and used for warehousing merchandise not in the course of being transported and was therefore deprived of the privilege of being derated.

The cases fell into two groups. In three of the cases, which were concerned with grain warehouses, the court upheld the findings of Quarter Sessions that they were occupied and used partly for purposes connected with the shipping and unshipping of merchandise and that Section 6 (3) (b) of the Act did not apply to them. To that group, therefore, the benefit of derating was given. In the other four cases, however, the Revenue succeeded. They were found to be mere warehouses where goods might be kept for a considerable time on payment of rents, and so coming within Section 6 (3) (b) of the Act, were not entitled to the benefit of derating.

New Mersey Dock at Bromborough

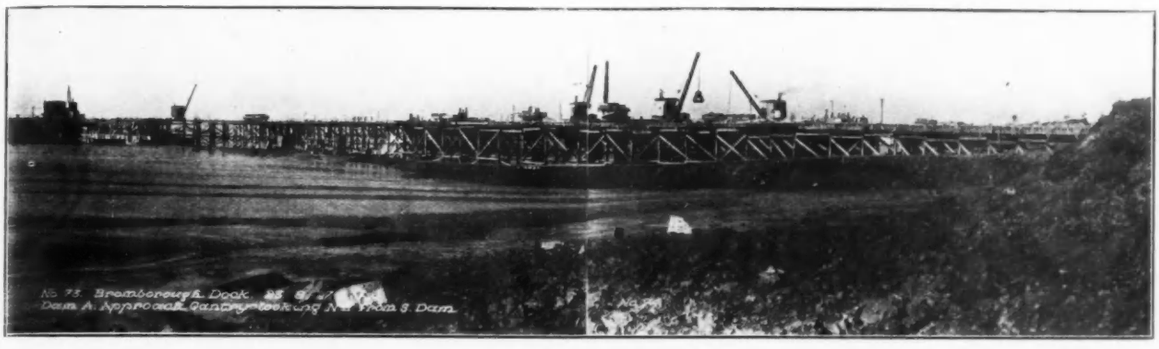
View of Dock Gates in course of erection from Dam "B," built across Lock Entrance.



Lock Entrance looking East. 19th September, 1930.

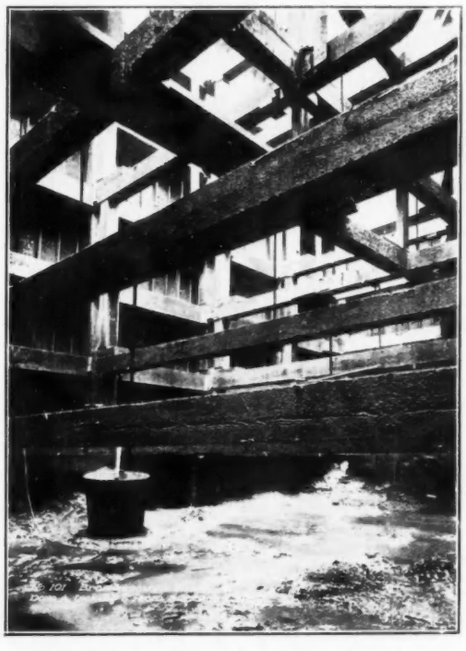
New Mersey Dock at Bromborough

Engineering Details of £1,000,000 Job.



Construction of Dam "A." Photograph taken August, 1927.

MESSRS. LEVER BROTHERS dock at Bromborough—which was officially opened on 17th April by the President of the Board of Trade—is situated on the west bank of the River Mersey, 4 miles above the Liverpool landing stage. It occupies an area of foreshore at the entrance to Bromborough Pool where, previous to the advent of the dock—this Pool formed the natural means of access for all barge traffic between the River Mersey and Messrs. Price's and Messrs. Lever Bros.' wharves.



Dam "A" looking South, 2nd December, 1927.

The dock, with its quays, occupies an area of some 37 acres but is flanked on the north and south by reclamation areas of approximately 100 acres. The work of filling these areas is at present in progress and will be continued until, in a comparatively short time, they will be available as part of the scheme of dock development.

In the immediate vicinity of the dock, Messrs. Lever Bros. have available for industrial sites an extensive estate of over 500 acres.

The dock is rectangular in form, with a deep water area of some 18 acres. To the south, the reclamation area is enclosed by a concrete river wall over 3,500-ft. in length and to the north the reclamation area is enclosed by a river embankment, 3,000-ft. in length, formed of sandstone rock and pitched on its river face with Cefn stone imported from North Wales.

Railway communication with the dock is provided by means of a double track connecting with the L.M.S. and L. & N.W. Joint Railways, via Messrs. Lever Bros.' existing railways. The new railways approach the dock through two cuttings which formed part of the dock works and the excavation required to form these necessitates the removal of some 75,000 tons of spoil, mostly composed of sandstone rock.

Throughout the whole period during which the dock works have been under construction, it has been necessary to keep open for barge traffic the waterway to and from Messrs. Lever Bros.' and Messrs. Price's wharves. To meet this requirement, a temporary service channel was formed, clear of the area to be occupied by the dock and traffic diverted to this channel.

Removal of Dam "B," showing Pump and Shute at South end for dealing with water, 6th October, 1930.

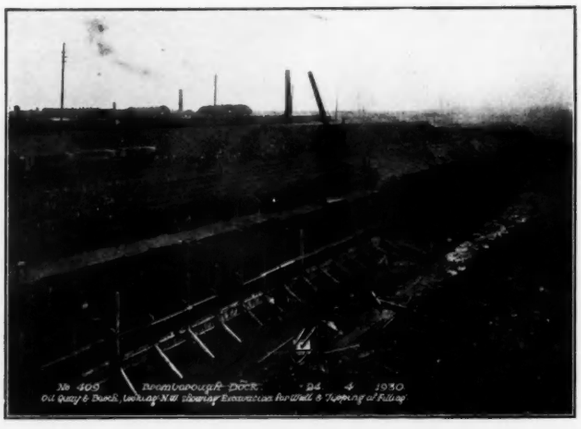
The first works to be undertaken included the construction of the S. River Wall and the N. River Embankment, as it was required under the Dock Act that substantial progress be made with these before the dock walls across the foreshore be undertaken.

The S. River Wall was constructed of pre-cast concrete blocks set in cement mortar and the foundations for the whole of its length were carried down to the rock underlying the bed of the river. The whole of the excavation for these foundations was carried out by tide work.

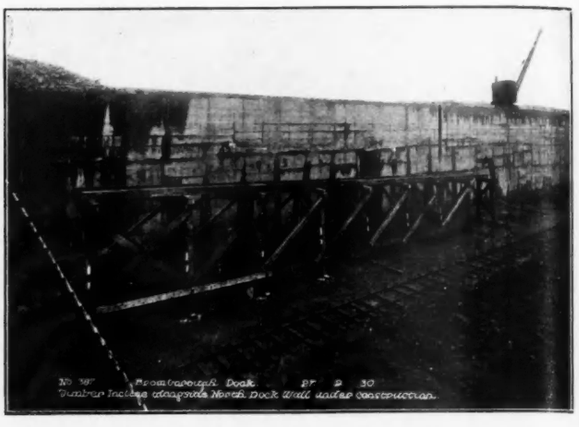
The N. River Embankment—constructed in the first instance from rock excavated from the temporary service channel and later from the dock works—has been formed on the river face to a slope of 1½ to 1. This face was hand-pitched to protect it from the action of waves in rough weather.

As soon as substantial progress had been made with these two works, arrangements were made to put into execution the dock construction scheme which provided for the exclusion of tidal water from the dock area at the earliest possible moment.

New Mersey Dock at Bromborough—continued



Oil Quay and Berth, looking North-West showing Excavation for Wall and Tipping of Filling, 24th April, 1930.



Timber incline alongside North Dock Wall under construction, 27th February, 1930.

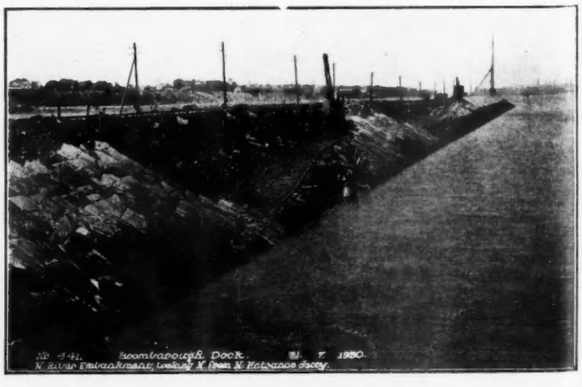
To enclose this area, the north quay wall was built of mass concrete by tide work. On the western side, the entrance to Bromborough Pool was closed by means of a clay dam, through which steel sheet piles were driven. On the south side, a dam running from land out to the river wall was formed by tipping rock excavated from the railway cutting on each side of clay excavated from a borrow pit. To make this dam quite water-tight, steel sheet piling was driven through clay core down to the underlying rock. The eastern or river side of the area was closed by the east river wall, which was built by tide work, with the exception of a length of 330-ft. where the level of the rock dropped too far beneath the surface to allow of such methods. This depression in the rock occurred where Bromborough Pool ran out into the river and the construction of the wall for this 330-ft., which presented considerable difficulties, was carried out inside a cofferdam formed of steel sheet piling and known as Dam " A."

Across the site of the entrance to the lock, an arched Dam " B " was constructed. Here there occurred another deep dip in the rock, covered by a deep band of hard, brown clay. The arched dam consisted of a double row of steel sheet piling driven through silt and clay down to the rock. Founded on the clay contained between these two rows of piling, radial pre-cast concrete blocks were built to form an arch springing on each end from mass-concrete abutments, founded on the rock at each side of the gulley. This is an unusual construction for a temporary dam, but it had the double advantage of a light dam having great strength and in addition required no strutting and was clear of all trench work.

In the construction of Dam " A," it was first necessary to erect 2 timber gantries, 1 running east and the other west of the site of the wall from which steel sheet piling was driven to form 2 sides of the Dam. Cross bulkheads, also consisting of steel sheet piles, were then driven and the excavation down to rock was carried out in these compartments which formed half-tide dams. As soon as the tide had left the dam, the water which filled the compartments had to be pumped out as quickly as possible and high capacity pumps had to be provided for this purpose. The magnitude of the pumping problem may be gauged from the fact that at one period approximately 1,500,000 gallons of water had to be pumped from Dam " A " and the neighbouring tide work trenches before any of the work could be done. Two of the pumps used were vertical spindle centrifugal machines, having electric motors on a common shaft, situated on top of the pumps. The larger of these had a suction pipe of 16-in. diameter and delivery 14-in. diameter, driven by a motor of 130 h.p., and was able to deliver 7,000 gallons per minute pumping against a head of 35-ft. of water. The smaller pump had a suction of 14-in. and a delivery of 12-in. diameter and could discharge 4,000 gallons per minute against a similar head. These pumps were hung on chain blocks and while still working were lowered down to follow the water as it was pumped out. The head pumped against varied up to about 52-ft. These pumps were sufficient for the dam in the earlier stages, but as the excavation work progressed, the volume of water correspondingly increased. Consequently the plant had to be reinforced by one 12-in., one 10-in. and two 6-in. centrifugal pumps built by Gwynnes of Lincoln and each motored by the Lancashire Dynamo and Motor Co., of Trafford Park, Manchester. Other pumps varying in size from 10-in. to 6-in. were used in tide work trenches. Pumping was usually effected in 1½ to 2 hours. It will be appreciated that the working time available after such a large quantity of water had been pumped out of the works was strictly limited and the work had to be carried out under conditions of considerable difficulty because after the pumping a large accumulation of silt had to be removed before any construction work could be attempted. The mass concrete forming the wall on this section was mixed on shore and run to the site in drop bottom skips which were lowered by cranes into the foundations where the concrete was deposited. At its deepest portion the base of the wall was 35-ft. wide and the total quantity of concrete deposited in the wall in this dam was about 21,000 tons. In order to withstand the pressure of the water and muck outside the steel sheet piles, heavy timber frames were inserted as the excavations proceeded, the timber being in turn removed as the concrete progressed. Considering the difficulty of the work, comparatively little trouble was experienced, although on several occasions " blows " of varying severity occurred under the steel sheet piling, owing to the water pressure of the tide forcing its way through weak ground and breaking through underneath the protecting steel sheet piles. This was overcome by dumping a clay blanket from the gantry over the top of the " blow " which in every case was a sufficient remedy.

While the enclosing walls and dams were being constructed, the tide was permitted to enter and leave the dock area freely through sluices which had been provided in the East River Wall just north of Dam " A " but as soon as this work had been completed in April, 1928, the sluices were closed at low water on a suitable tide, so that the tidal water of the river on rising was kept out of the enclosed area of the works.

Deepening the Dock Area, No. 2 Navvy excavating rock near North Dock Wall, 24th April, 1930.



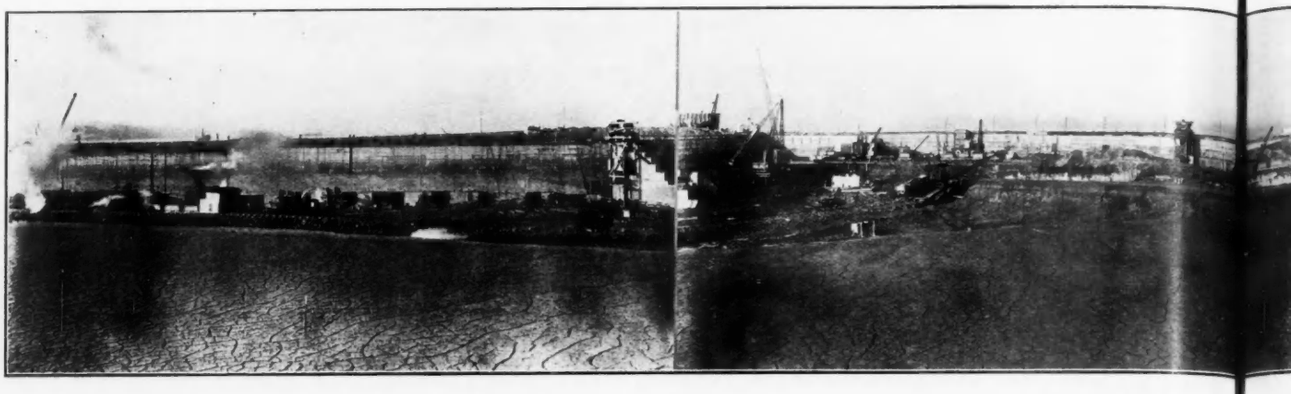
North River Embankment, looking North from North Entrance Jetty, 31st July, 1930.

New Mersey Dock at Bromborough

Removal of Dam "B," Central Section, looking South, showing progress on Courses 5, 6 and 7. 6th October, 1930.

Dam "B," looking North from S. Abutment, showing removal of Course 2 Blocks. 1st October, 1930.

New Mersey Dock at Bromborough—continued



An Interesting Panorama, showing portion of

After this, the construction of the south, east and west quay walls, the entrance lock, together with the excavation of the basin, was carried out in the dry and free from interruption of the tides. The materials excavated from the basin consisted of 755,000 cubic yards, including river silt and hard clay, and nearly 300,000 cubic yards of red sandstone rock. The work was carried out by three Ruston steam navvies on caterpillar tracks, the material excavated being loaded into side tipping wagons, hauled by locomotives up inclines and tipped to form the quay spaces adjoining the various quay walls. All the rock excavated was required for dry filling, immediately behind the quay walls and for the completion of the northern reclamation bank, and it was therefore necessary to excavate all the overlying soft material first and then excavate the rock separately. Before navvies could remove the rock, it had to be drilled and shaken with explosives.

General View of Dock Area from South-Eastern Steps, showing progress of Excavating and Deepening, 24th April, 1930.

Simultaneously with the progress of this work, the excavation and concreting of the quay walls was put in hand. These walls are all founded on the sandstone, excavation of the overlying material being carried out in timber trenches, except where the ground proved very difficult, in which case steel sheet piling was used for the sides of the trenches. One specially difficult place was the south-east corner of the dock where the level at which the rock was found had made Dam " A " necessary, was again encountered. Here great care had to be exercised for a considerable length, and steel sheet piling had to be driven before excavation could be attempted. The walls erected in the dry were all constructed of mass concrete composed of Portland cement and naturally mixed ballast, the latter being sea-borne in vessels from Workington, Fleetwood, Walney and Point of Ayre (Isle of Man). To provide against interruptions to the sea-borne supply, on account of bad weather or fog, a subsidiary supply was obtained from Rossett, near Wrexham, by rail. The boats carrying ballast, and others bearing cement, granite and other materials necessary for the works, were berthed at two temporary jetties, one at the south and the other at the north end of the works. From them ballast was run to feed portable mixers from which the concrete was placed direct into the walls. Pre-cast blocks were only used for the S. River Wall and for the arched dam which protected the lock entrance works. Mass concrete was used for all other quay walls.

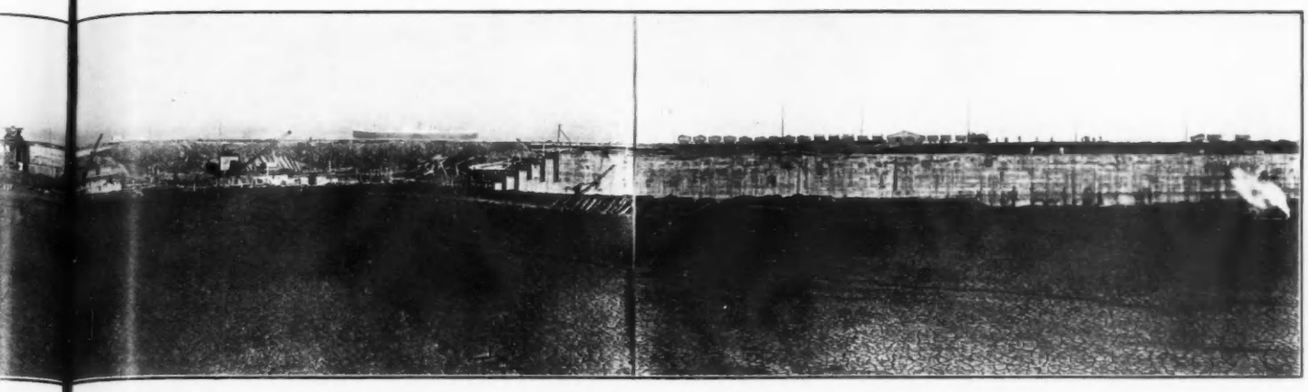
As soon as water had been excluded from the enclosed area, the foundations were laid for the outer ends of the entrance lock side walls. The outer section of the lock floor was then constructed so that the north and south abutments of Dam " B " (lock entrance) were connected by permanent work. After this had been done, and the foundations of the dam thereby secured, a steam navvy was moved down to the site of the lock and the overlying material excavated to a convenient level. The lock walls were then constructed of mass concrete and brought up to the original ground level. The rock level between the side walls, i.e., under the floor of the lock, fell away steeply forming a side gulley which led into the dock depression in Bromborough Pool. When the side walls had been brought up to a sufficient height to retain the surrounding ground, the steam navvy was again brought into the entrance and the clay dumpling between the walls excavated to expose this rock on which the floor was to be founded. Mass concrete was then deposited to form the floor. All hollow quoins, square quoins, stops and pointing sills, etc., were provided in granite ashlar and watertight work was dressed to within 6/1000ths of an inch of absolute accuracy.

General View of Southern Area from South-Eastern Steps, showing progress of Dock Excavation and the Oil Quay, 31st July, 1930.

Balancing culverts were provided in the side walls of the lock, the dimensions of these being approximately 6-ft. square. These culverts were controlled by hydraulic and hand sluices so that the water could be allowed to flow from the dock to the lock, from the lock to the river, etc., as desired. The sluices for these culverts are formed of greenheart timber paddles which can be raised or lowered into the granite recesses, the surfaces of which are also fine axed to watertight accuracy. The hand sluices are provided only for emergency, that is in case of the failure of the power sluices. Both the river and the dock ends of the entrance lock are provided with granite quoins and sills forming a recess into which a caisson can be fitted in the event of any repair work having to be carried out which would necessitate the entrance being emptied of water.

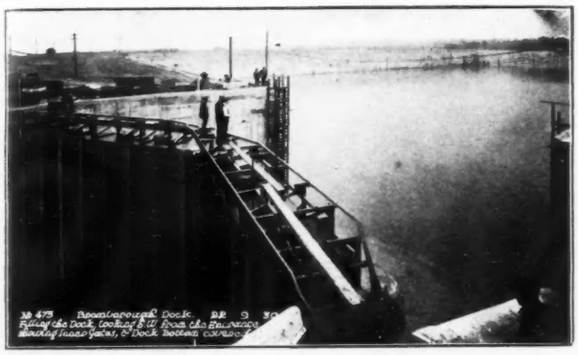
On the northern side of the entrance, concrete foundations were brought up from the rock to support the pumps, motors and the hydraulic accumulator as well as the pump house building, which contained them. A timber jetty 212-ft. long has been constructed on the north side and a short jetty of some 40-ft. long in the form of a bullnose at the southern side of the entrance. Owing to the rock being very near the surface over the site of the North Jetty it was impossible to use piles in its construction and a different method had therefore to be employed. The foundation of the jetty was formed by sinking steel cylinders, 21-in. in diameter, through the clay overlaying the rock, drilling through the rock to the required depth, a rolled steel joist being then passed down through the cylinder to the bottom of the drilled hole and grouted in with concrete. The upper end of the steel joist projected above the top of the cylinder and the timber structure of the jetty was then bolted to this.

New Mersey Dock at Bromborough—continued



...ama, showing the Three Dock Walls.

When the excavation of the dock area, the construction of the entrance and the erection of the gates had been completed, water was again—on 22nd September, 1930—admitted to the dock basin through a specially constructed channel provided with controlling sluices, the time occupied in re-filling the dock being just under one week. The arched dam across the outer end of the lock entrance and the timber gantry from which it was constructed were then removed.



Filling the Dock, looking South-West from the Entrance showing Inner Gates and Dock Bottom covered, 22nd September, 1930.

Meanwhile, the dredging of a channel to provide deep water access from the River Mersey to the dock had been in progress. The materials dredged were soft brown clay, sand, and a small quantity of red sandstone rock all of which, having been filled into barges, were mixed with water and pumped over the S. River Wall into the southern reclamation area. Before the rock could be dredged, it was broken by means of a Lobnitz rock-cutter, hired from the Manchester Ship Canal Company. On January 15th, 1931, barge traffic to and from the wharves of Messrs. Levers and Messrs. Price's was diverted from

Dock Area looking North-East from South-West corner, showing water lying in deepened oil berth, 19th September, 1930.

Bromborough Pool into the dock, where loading and unloading was carried out and the cargoes railed to and from the works. Meanwhile, a temporary timber gantry was built across the temporary service channel from which rock, clay and the concrete blocks which had been removed from Dam " B " were tipped to form a dam closing the service channel. As soon as this dam was watertight the dredger was brought inside the dock and a channel was cut through the clay dam which had been tipped across the old entrance into the Bromborough Pool. The traffic to the two factories was only interrupted for a fortnight (during which it was handled in the dock) before it was able once more to reach the works, this time through the newly-cut channel connecting the dock with Bromborough Pool, which had now ceased to be tidal. The steel sheet piling which had been driven through the centre of this dam had previously been extracted. The remaining work of cleaning up the entrance channel and closing the outer end of the temporary service channel, together with the equipment for the dock was then tackled.

The dock provides some 2,900 linear feet of berthage for vessels and 84,000 square yards of adjoining quay space. The depth of water in the dock varies from over 35-ft. at spring tides to 25-ft. at neap tides, sufficient for vessels up to 10,000 tons. One quay has been specially fitted as an oil quay and the berth alongside formed to a depth which will enable a vessel drawing up to 27-ft. to lie there safely on any tide during the

Filling the Dock. Raising Stop Blocks to allow water to enter the Dock, 22nd September, 1930.

year. The lock entrance is 75-ft. in width and 165-ft. long between the heel posts of the gates and has been designed to accommodate barge and river craft which will be able to enter and leave the dock at all times above the level of half tide. The lock is equipped with up-to-date electrically-driven hydraulic machinery and expedition in handling vessels into and out of the dock is assured. Three single-storey transit sheds, each 300-ft. by 75-ft. are now being erected, two of these are on the south quay and one on the west quay. Adequate railway tracks are being provided to allow of the rapid handling of goods for import and export and special arrangements and equipment are being provided at the east quay to bunker ships with coal. Electric portal cargo handling cranes of 2 to 5 tons capacity with a working radius up to 50-ft. are being installed, and to deal with grain and seed cargoes floating discharging elevators will be available. Electric capstans will be fixed at suitable points to facilitate shunting.

New Mersey Dock at Bromborough—continued

The dock has the great advantage that all the berths are rail berths, where vessels can discharge direct overside into railway vehicles, thus eliminating the expensive and time-consuming process of carting to and fro from import and export steamers.

The length of the south quay is 900-ft. and the north quay 900-ft., the oil berth on the west side is 475-ft. in length and the east berth for coaling is 500-ft. long. The contract for the supply and erection of oil tanks of from 500 to 2,000 tons capacity is being carried out by Messrs. Jenkins Bros., of Birkenhead, and includes the erection of eight 2,000-ton tanks, four 1,000 ton tanks and four 500 ton tanks and suitable pipe lines and pumps are being provided for quickly emptying tanker vessels.

General View of Inlet Channel for Flooding the Dock, 31st July, 1930.

At the north end of the west quay is a barge quay at which tank barges can be loaded with oils to be taken to the works of associated companies up the river.

Two pairs of lock gates of the buoyant type 39-ft. 4½-in. effective depth, 6-ft. moulded width and providing a clear entrance 75-ft. in width, span the lock. They are constructed of steel and fitted with greenheart heel posts, 2-ft. 6-in. diameter, greenheart mitre posts and clapping sills. They were built at the Naval Construction Works, Barrow-in-Furness, of the Contractors, Messrs. Vickers-Armstrong, Ltd., where they were temporarily erected and partially rivetted by hydraulic rivetting machines. They were then taken apart, sent to the site and re-erected in a vertical position in the lock. When all rivetting and caulking had been finished and the buoyancy chambers tested under a full head of water, the heel post, mitre posts and sill timbers were fitted and dressed to suit the granite quoins and sills and the gates were then launched into position and lowered on to their pivots. The anchorages having been adjusted, the gates were swung in the dry and the final mitreing completed. Seven men were able to close a leaf by pushing, the approximate weight being 140 tons. The backs and fronts of the gates are protected by pitch pine fendering and a gangway deck provides a means of crossing the lock.

The interior of the buoyancy chambers and the decks above the watertight deck are reached by means of access trunks. Each leaf is provided with an hydraulic ejector so that any accumulation of water in buoyancy chambers may be disposed of.

The operating machinery is hydraulic and consists of two sets of three-throw pumps, driven by 55 b.h.p. electric motors, having a capacity of 80 gallons per minute each, at 750 lbs. per square inch pressure. The hydraulic accumulator is of the self-guided type and has an 18-in. diameter ram with an 18-ft. stroke. The pumps and accumulator are controlled by electric switches actuated by the weight casing of the accumulator and so placed that they are started and stopped according to the duty required. The gate machines, placed in chambers in the lock wall and connected to the top deck of the gate leaf by a steel connecting girder, are capable of opening or closing the gates in 1½ minutes. Three hydraulic sluices and two hand power sluices, the sluice opening of which is 6-ft. by 6-ft. 9-in. are placed on each side of the lock.

Two 5-ton hydraulic capstans with seven fairleads are also provided on each side of the lock. These capstans can be converted to hand capstans if required.

The machinery portion of the contract was made at the Elswick Works of Messrs. Vickers-Armstrongs, Ltd., Newcastle-on-Tyne.

The work of construction which has been carried out to the designs and under the supervision of Messrs. Lever Bros.' Consulting Engineers (Messrs. A. J. Barry and Partners and Sir John Wolfe Barry and Partners, of Westminster), has occupied a period of some 6¼ years.

During the first twelve months of construction, Messrs. Kirk and Randall, Contractors, Westminster, carried out the work by contract.

Following this an agreement was entered into with Messrs. Perry and Co. (Bow), Ltd., by which this firm employed the labour and carried out the construction on a cost basis under the technical and financial control of the Consulting Engineers. This arrangement continued until July, 1929, and since that date Messrs. Lever Bros. have undertaken the construction by direct labour under the immediate control and supervision of their Consulting Engineers.

The Resident Engineer was Mr. H. J. C. Kuhl, M.Inst.C.E., and Mr. A. M. Holbein, who was previously employed as agent for Messrs. Perry and Co., has been in charge of the Works Department.

[In paragraph 5 of this article, end of second line should read G.W. and not L. & N.W. as printed].

Irish Harbour Matters

Galway.

Galway Port Development: County Mayo asked to Act.

SINCE the Ports and Harbours Tribunal set up by the Irish Free State Government, in its report pointed out that the commercial development of Galway Harbour would be a case for a State grant, provided they could get a rate guarantee aid from the adjoining counties of Mayo, Clare and Roscommon. A deputation from the Galway Harbour Development Committee waited on Mr. Bartley, the Commissioner administering the affairs of Mayo County Council at Castlebar, and asked him to levy a rate on the county for the scheme for the development of the commercial dock. The deputation included the Very Rev. Canon Nestor, P.P., Very Rev. Canon Davis, P.P., Messrs. Thomas McDonagh, Gilbert Lynch, M. J. Cooke, T. J. W. Kenny, H. C. Binns, B. E. Redington, Secretary, and J. J. Brown, Assistant Secretary.

It was pointed out that Galway County Council already had decided to levy a rate of fourpence in the pound, and the Urban Council a shilling in the pound. Galway Harbour Board applied its full surplus revenue, amounting to £2,500 per annum. The total sum required for the scheme was £336,000.

This scheme, it was pointed out, was quite distinct from the development of a trans-Atlantic port, and was an immediate practical proposition, provided the guarantees were passed; and would develop a coastal trade along the entire west coast and improve thereby the existing harbours.

It had been agreed by the committee that in the Bill it was about to promote, the guaranteeing counties would be given direct representation on the Galway Harbour Board, and this would have the effect of linking up the commercial interests of the Connaught counties and developing the economic solidarity of the important area west of the Shannon.

Mr. Commissioner Bartley, who received the deputation, replied that at the moment he could do nothing, as he would have to examine the case and ascertain what the adjoining counties would do.

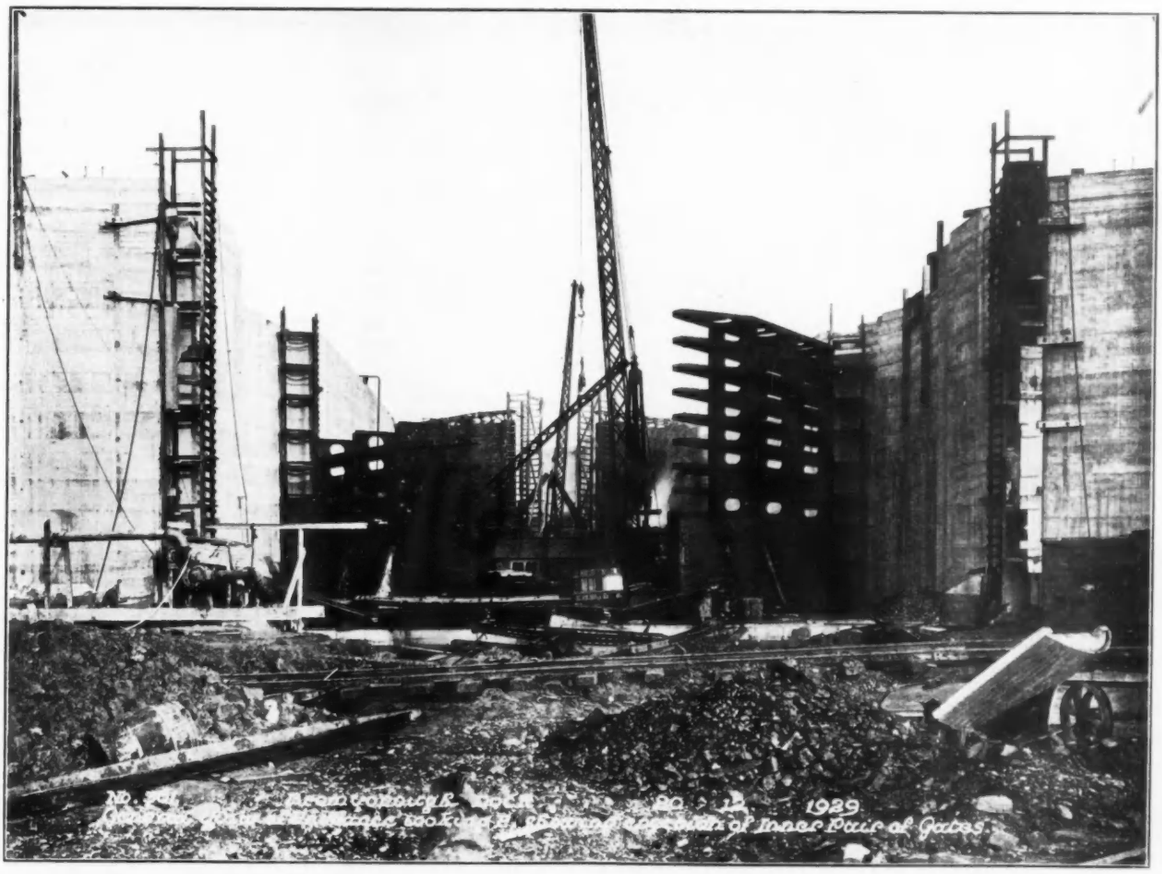
Dublin.

Proposed Reduction of Dues in Dublin.

Mr. Walter Baird has proposed at the Dublin Port and Docks Board that, from the 1st of July, 1931, the dues on ships entering the Port of Dublin shall be reduced as follows:—On foreign ships a reduction from 10½d. per ton to 9¾d. per ton, and on cross-Channel and coastwise ships from 6½d. per ton to 5½d. per ton. Furthermore, that dues on goods be reduced as follows:—Upon goods inwards a reduction from 100 per cent. of the schedule to 95 per cent. of the schedule, and upon goods outwards to be reduced from 100 per cent. of the schedule to 90 per cent. of the schedule. This resolution, from which Mr. George Byrne dissented, was approved, and will be submitted at a special meeting of the Board.

New Mersey Dock at Bromborough

Outer End of Entrance, looking North, showing lightening of clay and removal of piles across Entrance, and Drilling Dam "B" Blocks ready for demolition. 19th September, 1930.



General View of Entrance, looking East, showing erection of Inner Pair of Gates. 20th December, 1929.

Irish Harbour Matters—continued.

Bus Park over River Liffey.

What Mr. C. E. McGloughlin, Chairman of the Dublin Port and Docks Board described as a very desirable scheme, was submitted by Messrs. Monks and Gaynor, solicitors, who enclosed a plan whereby a portion of the River Liffey might be covered to provide accommodation and a parking place for Dublin's motor 'bus traffic.

The scheme provides in effect for the erection of a concrete platform extending along the sides of the Liffey from O'Connell Bridge to Butt Bridge which would serve as parking stations for 'buses and private motor cars. The length of the river between the two bridges is 850-ft., with a width of 175-ft. The proposed platform would run the whole length with a width of 50-ft. into the river on each side and leave the centre of the river free for navigation. The plan further provides for the construction of waiting room, lavatories and oil stations, with bridges at intervals between the two platforms. The scheme might be altered to the city side of O'Connell Bridge, or further up to Grattan Bridge.

While regarding the scheme with favour, Mr. McGloughlin thought that the work should not be undertaken by the Board but by the Dublin Corporation. If the alternative solution of Dublin's traffic problems were adopted—the erection of a new bridge where the Metal Bridge now exists—it would be the duty of the Board to support the cost of construction. The proposed scheme had the approval of the members of the Board, but their business was concerned with the port, tideway and river bed, and the consequent effects produced upon these. For these reasons the matter would be referred to the Harbour Master and the Port Engineer.

Belfast.

Belfast Harbour Board Elections.

On the 26th March a new group of members of the Belfast Harbour Board were elected. There were seven vacancies, six caused by the retirement in regular rotation of members of the Board and the seventh by the death of Mr. Wm. McCalla. The retiring members were: Sir T. W. McMullan, Mr. S. Berkeley, Mr. J. F. McCue, Mr. J. McCaughey, Mr. A. S. Davidson, and Mr. F. N. Cooke. There were eight candidates, the six retiring members and Mr. William Strachan, Chairman and Managing Director of Messrs. Workman, Clark and Co., Ltd., Shipbuilders, and Mr. Hugh Murphy, a well-known employer.

There was no vital question at issue. Mr. Strachan, in his election address, after pointing out that the shipbuilders had such a large interest in harbour affairs it was felt they ought to be represented on the Board, said "If I am honoured by being elected I shall gladly place my experience and knowledge at the disposal of the Board and by every means in my power will do what I can to assist those who have so ably brought the Port of Belfast to its present high state of efficiency and to keep it in line with the leading ports of the United Kingdom, with most of which I have intimate knowledge."

The Result.

Five of the six retiring members were returned, Mr. Cooke being defeated. Mr. Strachan headed the poll and Mr. Murphy was the last on the list of the successful candidates.

Out of 22,000 electors on the register, 11,202 votes were recorded. Mr. R. E. Herdman, the Chairman, who was Returning Officer, announced the result and in replying to a vote of thanks to himself and Mr. M. J. Watkins (who acted as Deputy-Returning Officer), and all others who had assisted with the election, said he admired beyond measure the good fellowship shown by all taking part in the election. He wished there had been eight vacancies instead of seven, because all the candidates were quite suitable to occupy a seat on the Board. While congratulating the new members he expressed regret at the loss of Mr. Cooke, one of their most esteemed colleagues. Mr. Cooke, however, had many years before him to fight another election and they hoped he would be successful.

Mr. Herdman Re-elected Chairman.

At a special meeting of the Belfast Harbour Board held on the 31st March, Mr. R. E. Herdman, D.L., was unanimously re-elected Chairman for the coming year.

Mr. J. Milne Barbour, Minister of Commerce in the Ulster Cabinet, in moving the re-election of Mr. Herdman, said it was 27 years since he became a member of the Board and was the only survivor of the group of new members elected 25 years ago. Mr. Herdman had occupied the position of Chairman for five years and in addition he held the very honourable position of President of the Dock and Harbour Authorities' Association of the United Kingdom, which was a very great compliment. The Board were fortunate that they had in Mr. Herdman one so well qualified to fill that high position, not only with benefit to the Association, but with credit to the port of Belfast.

During the period of Mr. Herdman's chairmanship of the Board, progress had been considerable. It had been a time of change, when many matters of very great importance had arisen for consideration and decision, and through it all they had found Mr. Herdman's guidance of the greatest possible value. The chairman knew the port intimately and its past history and his conduct in the chair had endeared him to everyone of his colleagues.

Mr. R. A. Mitchell, as one of the Senior Commissioners, seconded and expressed the hope that Mr. Herdman would be spared many years to be amongst them. Since Mr. Herdman became Chairman in 1926 the most pleasant relations had existed between the members. There had not been a difference of opinion that he was not able to compose to the satisfaction of all. Considering the work of the Board, how it had increased and was increasing, it was right they should have an experienced Commissioner and a man of long standing as chairman to guide their deliberations. Mr. Herdman had proved himself to be the guide they required.

Mr. Herdman, in expressing thanks for the honour conferred on him, said his one idea was to do what was best for the Port of Belfast and Ulster. The past year had been a very momentous one in the history of the port. The tonnage had reached the highest point it had ever done and their income had also been very satisfactory, so satisfactory indeed, that they had been enabled to reduce the dues by an amount representing £20,000 per year. It was felt by the Board that any prosperity or success which the Board might enjoy should be shared by the users of the port. During the year a very important work had been carried on with regard to the new dock and he suggested to the members that they should take the earliest opportunity of seeing what was being done as it would help them to realise more fully the importance of the great undertaking.

Mr. Herdman concluded by welcoming the two new members, Mr. Strachan and Mr. Murphy. Both of them were experienced business men and he had no doubt they would help the other members of the Board in their deliberations.

The Auditors' Report.

At the annual meeting of the Belfast Harbour Board on the 7th April, Mr. R. E. Herdman, D.L., Chairman, presiding, the report of Messrs. J. A. Milligan and A. S. Atkinson, Auditors, for the year ending 31st December last, was submitted. It showed that the total receipts for the year came to £318,577 9s. 2d., as against £303,632 19s. 10d. for 1929, an increase of £14,944 9s. 4d. The payments were £238,178 0s. 5d., leaving a gross surplus of £80,399 8s. 9d. From the surplus the annual statutory contribution to the sinking fund of £10,738 16s. 3d. and depreciation of plant amounting to £9,671 1s. 2d. fell to be deducted, leaving a balance of £59,989 11s. 4d., which was utilised as follows:—£6,000 to augment the insurance fund, now standing at £28,988 7s. 2d., £15,000 to the statutory borrowing and spending account. The net balance of £38,989 11s. 4d. was transferred to the unappropriated receipts account. The amount of this transfer the previous year was £24,061 4s. 9d. and the increase in the amount approximated to the increase to income.

During the year £13,460 of Belfast Harbour Commissioners' stock was purchased at a cost of £9,986 8s. 4d. The statutory contribution to this fund and the dividends and interest received and credited amounted to a total of £29,560 19s. 4d. The uninvested balance of the sinking fund stands at £112,043 18s. 6d.

On the motion of Right Hon. J. Milne Barbour, seconded by Mr. R. A. Mitchell, the report was received and recorded on the minutes.

Rising Port Traffic.

At the ordinary meeting of the Board held on the same day the report of the Harbour Master was submitted. According to it 426 vessels arrived at the port during the period extending from 15th March to 4th April, as follows: cross-Channel and coastwise, 386; foreign, 29; non-trading, 11.

The total tonnage of vessels which arrived from 1st January to 4th April was as follows: cross-Channel and coastwise, 707,579; an increase of 38,099 compared with the same period in 1930; Foreign, 180,667, an increase of 24,215; Non-trading, 22,644, a decrease of 16,483. Total—910,890, an increase of 45,831.

Tilbury Contracting and Dredging Co., Ltd.

Tilbury Contracting and Dredging Co., Ltd., who have been established as Dredging and Lighterage Contractors for nearly 50 years and own quarries in Scotland and Kent, recently acquired a freehold site in Petty France, Westminster, for office premises.

The new building erected thereon for the sole use of the Company is now completed. It is called Tilbury House, and the Company's business will be transferred thereto on 1st May.

Dock and Harbour Authorities' Association

Report of the Executive Committee for the Year ended 31st December, 1930

(Continued from page 187).

Railways Act, 1921.

1930 Review of "Standard Charges" and "Exceptional Charges."

The Interim Reports gave the members information with regard to this review and set out the letter dated May 5th addressed to the railway companies and attached to the notice of objection and submission lodged by the Association with the Railway Rates Tribunal.

The Association's action was similar to that which they took on the first review in May of 1929, and they did not appear before the Tribunal.

The Tribunal, in a written judgment dated June 5th, 1930, came to the same conclusion as they had done in 1929, viz.:—

That the deficiencies which had been established were not due to lack of efficiency or economy in the management;

That deficiencies not necessarily so large but substantial in character are likely to continue;

That nothing appearing upon our review which established that under present conditions any modification or modifications would enable the companies to earn their respective Standard revenues, no such modifications are necessary and we make none (Circulars 203 and 208).

Coast Protection Bill.

This Bill (pages 11 and 12 of the 1929 Report) was withdrawn before it reached Committee stage.

Hours of Industrial Employment Bill.

Washington Convention—8 hours' day.

The question of the ratification of this Convention is referred to on pages 18 and 19 of the 1929 Report.

The Minister of Labour in February last forwarded to the National Confederation of Employers' Organisations the heads of the proposed Bill to ratify the Convention, and deputations of employers collectively and of special interests, including the dock industry, separately discussed these proposals with the Minister in March. The Bill itself was introduced into the House of Commons on April 16th, and was referred for consideration to the Association's Docks and Factories Sub-Committee.

The Bill was not read a second time in the 1929-30 Session. It has been reintroduced this Session, but has not yet obtained a second reading.

Grants to Dock and Harbour Authorities for Works to Relieve Unemployment. Claim to Income Tax.

Seaham Harbour Dock Company v. W. F. Crook (H.M. Inspector of Taxes).

This case, which was of great importance to dock authorities and had been decided by Mr. Justice Rowlatt on April 29th in favour of the Crown, came before the Court of Appeal on October 23rd, when the Court unanimously reversed Mr. Justice Rowlatt's judgment.

The point at issue was whether a grant made by the Unemployment Grants Committee calculated on a percentage of the interest on money expended by the harbour company on a dock extension scheme was a capital receipt or an annual profit or gain. In the latter case the amount of the grant would be taken into account in arriving at the assessment of the harbour company for the purpose of income tax.

The judgments of the Master of the Rolls, Slesser and Romer, L.JJ., holding that the grants are in the nature of capital and are not an annual profit or gain, were forwarded to the members with a letter pointing out the general principles laid down in the decision (Circular 215).

The Seaham Harbour Dock Company, who are not members, asked the Association to contribute towards the cost of the appeal. The matter was considered by the Executive Committee, and certain members agreed to share the expenses which would be incurred if the appellants were agreeable to brief Sir John Simon, K.C., to lead for them.

The company consented and Sir John was briefed. The thanks of the Association are due to those members who subscribed to meet the extra expenses thus incurred.

Water Transport Premium.

(a) Premium for 1930.

The subject for the 1930 paper (Circular No. 188, December 20th, 1929) was:—

"Causes of and precautions against congestion at ports, with special reference to the best methods of preventing congestion of traffic at ports."

Ten papers were submitted, and the adjudicators appointed by the Institute of Transport awarded the prize, a gold medal, to Mr. Walter E. Tapper, a member of the staff of the Port of Bristol Authority. Mr. Tapper's paper is set out in full in the "Journal of the Institute of Transport" for November, 1930 (Circular 217).

(b) Premium for 1931.

The subject selected by the adjudicators, Messrs. Ross-Johnson, Watkins and Sir David Owen, appointed by the Institute of Transport for the present year, is:—

"Port Statistics. What they should contain and why, with an account as to their application to problems confronting the management, and with special reference to the distinction between 'facilities' and 'services.'"

The Committee were pleased to note the increased interest that was taken in the 1930 competition, and hope that there will be a still larger entry for 1931. (Circular 218).

British Engineering Standards Association.

The following draft specifications, prepared by Committees of the Standards Association, on which the Association is represented, were circulated to members during the year for their comments:—

1. C.B. (ME) 9504.—Draft Specification for Short Link Wrought Iron Crane Chain (Circular 189).
2. C.B. (ME) 9609.—Draft Specification for Hand-operated Derrick Cranes (Circular 191).
3. C.C. (ME) 1735.—Draft Specification for Spur and Helical Gearings (Circular 207).
4. C.C. (ME) 2112.—Draft Specification for Manila Ropes for Marine and General Purposes (Circular 211).

The under-mentioned specifications were completed and published during the year:—

Hand-operated Derrick Cranes (No. 2 of the above).
Derrick Cranes (power-driven) (Circular 175).
Travelling Jig Cranes (Circular 166).

The drafts of the two latter were circulated in 1929.

International Labour Conference, Geneva, 1929.

Convention for Protection against Accidents of Workers Employed in Loading and Unloading Ships.

This matter is referred to in some detail on pages 17 and 18 of the 1929 Report.

At the request of the Home Office the Committee which revised the British Regulations now in force, S.R. and O., No. 231, of 1925, were called together to consider the Convention agreed to at Geneva in 1929, and to report to the Home Secretary on the differences between it and the British Regulations.

This Committee, with the Chief Inspector of Factories (Sir Gerald Bellhouse) as Chairman, has met several times during the year, and a draft report, prepared by the Chairman, is now under consideration.

Buoyage and Lighting of Coasts. International Conference at Lisbon.

An invitation was received by H.M. Government through the League of Nations to be represented at an International Conference to be held at Lisbon in October to consider the proposals contained in the "General Report and Proposals of the Technical Committee for Buoyage and Lighting of Coasts," which Committee met at Genoa in February, 1929 (Report for 1929, page 23).

This Report was compiled following the obtaining of information by three members of the Committee who, as Rapporteurs, proceeded to the United States and Canada to study the signal systems of those countries. The buoyage proposals set out in this Report follow in the main the United States system, and are the opposite to the proposals adopted by a similar Committee held at Stockholm in 1927, which in the important particulars of the arrangements in the lateral system of night colours and of the allocation by day and by night of green to wrecks, were largely in accord with the system generally adopted in the United Kingdom.

Great Britain was not represented at the Conferences in 1927 and 1929.

On receipt of the invitation a further meeting of the bodies interested was convened by the Board of Trade in April, and those present, whilst being unanimously of opinion that the proposals to be considered by the Conference were unsatisfactory, as they would not even achieve uniformity, adhered to their previous recommendation that alterations were not necessary or desirable in the British system. Later, however, H.M.

The Dock and Harbour Authorities' Association—continued.

Government decided that it was advisable for Great Britain to be represented at Lisbon, and in addition to their Departmental representatives the Government invited Trinity House, this Association, the Chamber of Shipping and Northern Lights to nominate delegates for appointment.

The British Delegation was ably led by Sir John Baldwin, K.C.M.G., C.B., of the Foreign Office, and included Major E. G. Finch and Captain F. W. Mace (Mersey Docks and Harbour Board), who were nominated by the Executive Committee, and also Mr. D. Alan Stevenson, M.I.C.E., who represented not only Northern Lights and Irish Lights, but the interests of several of the principal local lighthouse authorities in Scotland.

The names of the other British delegates were as follows:—

Mr. F. E. F. Adam, Counsellor to the Embassy to the President of the Portuguese Republic.
Mr. J. P. Bowen, B.Sc., M.I.C.E., Engineer-in-Chief, Trinity House.
Capt. V. R. Brandon, C.B.E., R.N., Professional Officer of the Board of Trade.
Capt. K. E. L. Creighton, M.V.O., R.N., of the Admiralty.
Hon. H. L. Cripps, C.B.E., representing British Shipowners.
Vice-Admiral Sir Robert Mansell, K.C.V.O., C.B.E., Deputy Master of Trinity House.
Capt. A. H. Ryley, Elder Brother of Trinity House.

Before proceeding to Lisbon Major Finch, Captain Mace and Mr. Stevenson met the representatives of a number of the principal local lighthouse authorities when the 1929 proposals were explained, and the counter-proposals which the British delegates were likely to put forward were outlined. The general line of policy was then approved.

The Conference at Lisbon lasted from the 6th to the 24th October, and was attended by the representatives of no less than 32 nations and 7 international organisations and associations.

Three Committees were set up by the Conference, viz., (1) Buoyage, (2) Lighthouse, and (3) Signals, of which the Buoyage Committee was the most important.

Almost from the moment that the British counter-proposals were put before the Conference as a satisfactory basis for unification, it became evident that the representatives of most of the States present were looking to the British Delegation for guidance. These counter-proposals were fully discussed by the Buoyage Committee, but owing to a fundamental difference of opinion with the delegates of the United States, Canada, Brazil and Japan, no general agreement was arrived at. The main points on which difference arose were:—

1. Which side of the Channel the red buoy and red light should be placed.
2. Wreck marking by night.
3. The numbering of buoys in channels.

Eventually it was decided to prepare and attach to the proceedings of the Conference a series of articles indicating rules which, subject to the settlement of the outstanding questions, should serve as a basis for future discussions, and the Conference adjourned for about a year, to allow the Governments concerned to make fresh efforts to reach agreement after consideration of the proceedings.

It is clear from a declaration signed on behalf of 12 nations (and supported by the representatives of 4 others) that the European and certain of the North African maritime countries are determined to adopt a uniform system of buoyage of one description or another, even though the uniformity should only be regional, and that they are looking to Great Britain for a definite lead.

The work of the Lighthouse Committee and the Signal Committee was brought to a conclusion, and at their plenary sitting the Conference adopted the following:—

(a) Recommendations on lighthouse characteristics and radio beacons.
(b) Agreement concerning maritime signals.
(c) Agreement concerning manned lightships not on their stations.

Of the above (a) and (c) were signed by Sir John Baldwin on behalf of Great Britain and Northern Ireland, but not (b), owing to the unsuitability of the signals for the needs of the United Kingdom.

The final act of the Conference, which was also signed on behalf of Great Britain and Northern Ireland, includes a recommendation relating to wave lengths to be assigned to radio beacons with a view to obtaining more satisfactory differentiation between maritime radio beacons and similar stations used for air navigation.

The Board of Trade have called a meeting of the interested parties for the end of February to consider what steps should be taken by H.M. Government with a view to furthering the cause of uniformity. It is suggested that the basis of discussion should be the scheme put forward by the British Delegation at Lisbon, with the criticisms and suggestions made there and arising from the further consideration since given to the matter by the Lighthouse Authorities.

Committee on Ministers' Powers.

This Committee appointed by the Lord Chancellor (Lord Donoughmore, Chairman) commenced taking evidence towards the close of 1929, and is expected to make its report shortly.

The terms of reference are as follows:—

" To consider the powers exercised by or under the direction of (or by persons or bodies specially appointed by) Ministers of the Crown by way of (a) delegated legislation, and (b) judicial or quasi-judicial decision, and to report what safeguards are desirable or necessary to secure the constitutional principles of the sovereignty of Parliament and the supremacy of the law."

The Association were invited to give their views in writing, to be supplemented by oral evidence if necessary. The Association's statement, dated December, 1930, was submitted to the Committee, and was at the same time circulated to the members (Circular 221).

Artificial Lighting at Docks.

The Illumination Sub-Committee of the Department of Scientific and Industrial Research (pages 24 and 25 of the 1929 Report) have visited some of the principal ports, and it is expected that they will shortly issue their Report as to the suitability of methods of lighting docks in general.

The Association's assessor, Mr. Alaric Hope, has assisted the Committee in their investigations.

Royal Commission on Transport.

It was reported (Report for 1929, pages 21-23) that Mr. D. J. (now Sir David) Owen and Mr. M. Kissane had given evidence before the Commission on behalf of the Association on October 31st, 1929. Subsequently Sir Norman Hill gave evidence for the Shipowners' Parliamentary Committee, in the course of which he referred to the desirability of the Minister of Transport having power to revise the maximum charges which dock authorities are authorised by Parliament to levy.

The Association wrote to the Royal Commission asking whether it was desired that they should give supplementary evidence, and at the same time, in commenting upon Sir Norman Hill's evidence, drew attention to the fact that shipowners and merchants have large representation on the Boards of Dock and Harbour Authorities with a corresponding vote in the regulation of rates. The Commission, in reply, stated that they had taken note of the Association's observations, and it was unlikely that they would require additional information.

The final Report of the Royal Commission, dated December 19th, 1930, has now been published (Cmd. 3751).

Attention is drawn to, *inter alia*, Chapter VII, " Harbours, docks and coastwise shipping," and to the remarks under the same heading, in the " Summary of conclusions and recommendations," Chapter IX.

Pollution of Streams and Rivers.

A further Conference was held on November 18th this year under the auspices of the Royal Sanitary Institute, at which Major E. G. Finch, solicitor to the Mersey Docks and Harbour Board, and Cmdr. E. C. Shankland, river superintendent of the Port of London Authority, represented the Association, as they did at the Conference in May, 1929 (Report for 1929, pages 25 and 26).

A resolution was passed at the morning session welcoming the power conferred upon the Minister of Health by the Land Drainage Act of 1930 to set up River Boards, and urging the Minister to put in hand forthwith an examination of all rivers which are not already provided with River Boards, with a view to the formation of such Boards wherever this may be considered desirable.

The proceedings at the Conference are reported in the issue of the " Journal of the Royal Sanitary Institute " for January, 1931.

International Colonial and Maritime Exhibition, Antwerp, May, 1930.

(Report for 1929, p. 26.)

The Department of Overseas Trade requested the Association to appoint a representative as a British Juror on the Committee to adjudicate on the Exhibits in Class 87, which covered the administration and plant of maritime ports and inland waterways.

The Association were fortunate in obtaining the services at short notice of Mr. D. Ross-Johnson, late general manager of the Port of Bristol Authority. Mr. Ross-Johnson was appointed Chairman of the Committee, and his work in that capacity was greatly appreciated.

The Dock and Harbour Authorities' Association—continued

Harbours, Docks and Piers (Temporary Increase of Charges) Acts, 1920 to 1922.

These Acts were continued for three years, viz., until December 31st, 1931, by the Expiring Laws Continuance Act, 1928.

Notwithstanding the recommendation of the Select Committee on the Expiring Laws Continuance Act (White Paper No. 101 of 1928) that these Acts should be replaced as soon as possible by permanent legislation, it was ascertained that the Government had no intention of introducing a Public Bill to confirm charges at present in force. It was further stated that there was no likelihood of the Temporary Acts being again extended. Subsequently, however, after representations had been made to them, the Ministry of Transport wrote that the Temporary Acts would be included in the Expiring Laws Continuance Bill of 1931, with a view to the further prolongation of their operation (Circulars 212 and 214).

Development (Loan Guarantees and Grants) Act, 1929.

Government Schemes for Relief of Unemployment.

Following the meeting with the Lord Privy Seal (Mr. J. H. Thomas) and the Minister of Transport (Mr. H. Morrison) in July, 1929 (pages 9 to 11 of the Report for 1929), the Association wrote to the Ministry of Transport asking that more favourable terms should be granted to dock and harbour authorities to enable them to put forward schemes which would contribute to the relief of unemployment (Circular 197).

The Unemployment Grants Committee issued a fresh Circular in July, 1930 (U.G.C. 26) containing the Government's latest offer. These terms did away with the condition as to the employment of transferred labour in order to obtain the highest grant for non-revenue producing schemes financed by way of loan and allowed increased grants towards wages in the case of schemes financed otherwise than by way of loan.

Subsequently, as is stated earlier in this Report, the Public Works Facilities Act was passed in order to facilitate the procedure for obtaining powers to carry out schemes.

Increased Offer to Small Ports.

In September the Government authorised the Unemployment Grants Committee to make a special grant in respect of improvement or reconstruction works connected with small docks and harbours which could be put in hand by January 1st, 1931, and which were likely to be of material value in promoting the development of agriculture. These improved terms were grants of 100 per cent. of the interest on any loan raised to meet approved expenditure for the first seven years of the period of the loan, and 50 per cent. of the interest for the remainder of the period or eight years, whichever is the shorter.

This offer was circulated to members likely to be affected, and at the same time representations were made to the Ministry of Transport that the time limit, viz., January 1st, 1931, should be extended to allow ports to take full advantage of the offer. The Ministry, however, have not intimated that the time will be extended.

Deterioration of Structures exposed to Sea Action.

During the year the Tenth and Eleventh Reports of the Committee of the Institution of Civil Engineers were published by the Department of Scientific and Industrial Research.

These Reports are of interest to dock authorities, several of whom contributed towards the expenses of the Committee's investigations. Prints can be obtained from the Stationery Office, or from the Office of the Department, 16, Old Queen Street, S.W.1, at a price of 2s. and 9d. respectively (Circulars 201 and 220).

International Maritime Conventions.

(a) Shipowner's Liability.

(b) Mortgages and Liens.

The Comité Maritime International met at Antwerp in August, 1930, and the British Maritime Committee submitted a Report referring, *inter alia*, to the above-named Conventions.

The Association were not represented at Antwerp, but wrote to the Board of Trade reminding them that the reservations in the footnote to Article 1 of the former and Article 2 of the latter Convention, which provide for the protection of the rights and powers of Dock and Harbour Authorities should be incorporated in any Bill to confirm the Conventions.

The Conference passed a resolution appealing to the respective Governments to ratify the Maritime Conventions agreed at Brussels in 1924 and 1926, which include, as well as the above-named, Conventions on Bills of Lading and Immunity of State Ships.

No Bills to ratify these Conventions have yet been introduced, but a Government Bill dealing with the Convention of 1929 for Safety of Life at Sea has obtained second reading in the House of Lords, and a Bill to ratify the latter and also the Load Line Convention has been introduced by Earl Stanhope.

XVth International Congress of Navigation.

The attention of members is again drawn to this subject, which was brought under the Association's notice by the Ministry of Transport. The Congress is to be held in Italy in September, 1931.

Any Authority proposing to be represented and persons prepared to read papers at the Congress should get in touch with the Ministry at an early date, and in this respect members are referred to the remarks on page 26 of the 1929 Report and to Circular 178.

Trade Board Acts—Catering Trade.

The Minister of Labour (Miss Bondfield) issued a draft Special Order in August proposing to apply the Trade Board Acts to the catering trade as defined in the Appendix attached to that Special Order.

The chief opposition came from the hotels, restaurants and other public caterers, but as staff canteens and departmental dining rooms appeared to be covered by the Order a general objection was lodged by the Association on the ground that such canteens and dining rooms were not in any way part of the catering trade.

A public Inquiry was held in November and December by Sir Arthur Colefax, K.B.E., K.C., the Commissioner appointed by the Minister to consider and report on the objections received.

A co-ordinated case on behalf of 32 employers' organisations concerned in the question of staff canteens (including the Association) was presented by Mr. John A. Gregorson on behalf of the National Confederation of Employers' Organisations.

The Commissioners' Report to the Minister of Labour had not been published up to the end of the year.

Derating of Railway, Canal and Dock Undertakings.

Local Government Acts, 1929.

Rating and Valuation (Apportionment) Act, 1928.

During the year there have been a number of decisions on the subject of the class of "Industrial hereditaments" entitled to de-rating benefit. Reports of these decisions will be found in "The Times" newspaper of the 9th, 15th, 16th and 17th April, the 22nd, 24th May, 12th July, and 16th December. The July report was of judgments of the Court of Appeal, and the December report was of decisions given by the House of Lords. By now, no doubt, the judgments will be recorded in more permanent reports which are accessible to the members.

To the end of the year there have been no cases in the High Court as to "Freight transport hereditaments." Section 5 of the Apportionment Act.

Many such cases have been before Quarter Sessions in England and the corresponding Courts in Scotland, and appeals are now pending in the higher Courts as to what constitutes a "Freight transport hereditament" for the purposes of the Act.

The Committee repeat their request to members to bring under notice questions arising on the three Acts, and to forward to the secretary copies of cases stated for the opinion of the higher Courts, both in England and Scotland.

Miscellaneous.

Among other matters which have received attention during the year are:—

Aircraft Port Charges—Australia and New Zealand.
Arrangement with Government, December, 1920—
Dues on Ships—(a) Boston Harbour.
Dues on Goods—(b) Dundee Harbour.
Association des Grands Ports Français—Visit to British Ports.
Buoyage and Marking of Channels—Motor Boat Association.
Crown Proceedings Bill—Liability in respect of Crown ships.
Dock Labour Inquiry.
Dock Regulations, 1925—Hatch Covers.
Draft Building (Amendment) Regulations.
Dues on Foreign Yachts—Dover Harbour.
Income Tax—Dartmouth Harbour.
International Chamber of Commerce—British National Committee.
International Labour Organisation—Promotion of Seamen's Welfare in Ports.
Oil Separators.
Pilotage Authorities—Limitation of Liability.
Pilotage By-laws—Retirement of Pilot.
Procedure at Official Functions—New Zealand.
Railway Dock Accounts.
Safety-First Arrangements.
Steam Boilers.
Testing Machinery and Gear used in hoisting and lowering.
Tonnage Measurement—Oil-carrying Ships.

Principal Circulars issued in 1930.

Specification (Nos. 189, 191, 207 and 211).

Railway Companies' Bills—
Rates and Charges at Railway-owned Docks (No. 196).

The Dock and Harbour Authorities' Association—continued

Development (Loan Guarantees and Grants) Act, 1929—Government Scheme for Relief of Unemployment (No. 197).
Dock Tonnage Rates on " Deck Cargo " Spaces (No. 200).
Regulations as to the keeping and use of Petroleum Spirit. Petroleum Bill (No. 202).
Interim Reports—May and September (Nos. 203 and 208).
Private Bills Acceleration and Simplication of Procedure. Public Works Facilities Act (Nos. 205 and 210).
Harbours, Docks and Piers (Temporary Increase of Charges) Act, 1920 (Nos. 212 and 214).
Anthrax (No. 213).
Unemployment Grants—Income Tax Appeal (No. 215).
Water Transport Premium (Nos. 217 and 218).
Powers of Ministers—Lord Donoughmore's Committee (No. 221).

Accounts.

The expenditure charged to this year's accounts amounts to £2,782 14s. 7d., of which £2,772 1s. 7d. is payable by members of the Association.

The greater part of the Parliamentary Agent's account, viz., £1,453 3s., was incurred in opposing the Dock Charging Clauses in the Bills of the London and North-Eastern, the London, Midland and Scottish and the Southern Railway Companies. For the time being these charges have been met by a loan from the five authorities represented on the Railway Sub-Committee, and the thanks of the Association are due to them for again coming forward to enable special expenses to be spread over two or more years to the advantage of the general body.

The Committee recommend a levy of 30 per cent. on the 1930 subscriptions (say £570), which, after meeting the expenses charged to the year will provide about £450 towards repayment of the railway opposition expenses, leaving £1,000 to be met in the accounts of future years.

The levy will be charged to members whose subscriptions come within Classes 2 to 15 of the Table to Rule 12 (3); it is not proposed to apply it to Harbour Conservancy, Pilotage and Irish Free State Authorities, nor to those falling within Class 1 of the Table.

Subscriptions.

Harbour Conservancy Pilotage and Lighthouse Authorities.

The Committee fixed the subscriptions of these Authorities under Rule 12 (4) for 1931, on a gross income basis.

Scottish Harbour Notes

Pier Wall at Dunbar Damaged.

IT is estimated that the damage caused to the East Pier wall at Dunbar by high seas during the past winter is over two thousand pounds, and an application has been made to the Unemployment Grants Committee for financial assistance. It is urged that this is a non-revenue producing scheme, being a breakwater forming a defence to the town's property against encroachment by the sea, and high hopes are entertained locally that a substantial grant will be forthcoming. During the winter months the East Coast of Scotland was visited by many very heavy gales, and Dunbar was one of the chief sufferers from same.

Kirkwall Pier Extension to Cost £14,000.

Orkney Harbour Commissioners have resolved to carry out important extensions to Kirkwall Pier at an estimated cost of £14,000, which—together with the present extension—will bring the total cost of the scheme to £25,000. It is proposed to both widen and lengthen the pier, and this will result in an all-round improvement which will facilitate the control of vehicular traffic as well as shipping. This particular scheme has been under the consideration of the Orkney Harbour Commissioners for some time, and it is felt that this is an opportune moment for carrying through extensions which are bound to be of great benefit for the future.

Lochranza Harbour Silting-up.

Sir Aylmer Hunter-Weston—the Member of Parliament for Buteshire and North Ayrshire—recently addressed to the Fishery Board of Scotland a communication regarding the condition of the harbour at Lochranza at the North end of the Isle of Arran. This communication urged that Lochranza Harbour should be dredged to allow for free anchorage, but the Fishery Board have now intimated the existence of a statutory difficulty. If, however, this difficulty can be removed, the arguments adduced by Sir Aylmer Hunter-Weston will be kept in view, and in due course Lochranza Harbour will be reconditioned in accordance with modern requirements.

Graving Dock at Glasgow to be Deepened.

Work for a period of six months for 250 men is to be provided by the Clyde Navigation Trustees as the result of approval being given for lowering the floor of No. 3 Graving Dock at the Glasgow Harbour so as to bring it into line with modern requirements. This alteration will enable large vessels to be docked with a foot more draught, and this will improve their stability in docking. In moving (at a recently held meeting of the Clyde Navigation Trustees) the adoption of this scheme, Mr. Charles Donaldson (Convener of the Harbour Committee) stated that the dry dock was not at present up-to-date, and that in docking large steamers it was a constant source of anxiety. The new scheme, however, would obviate the present risky and dangerous work, and would improve the requirements of the harbour for many years to come.

Subsidence in Buckie Harbour.

Recently a subsidence occurred at the north pier in the east basin of Buckie Harbour—which is at present being deepened—and the report from the engineer was that the sea had sapped through the foundation when the basin was empty, and that subsequently two openings had appeared in the toes of concrete blocks of which the harbour is constructed. The length of the subsidence measured 84-ft., and steps were immediately taken for the repair of the damage during which period the work of excavation had to be suspended. This proved a severe blow to the large number of local unemployed fishermen who are meantime dependent upon this work for a livelihood, and in the circumstances the repair work was completed as speedily as possible in order to allow normal operations to be resumed.

Portknockie's £50,000 Improvement Scheme to be Curtailed.

In connection with the suggested £50,000 improvement scheme at Portknockie it is intimated that this has not met with the approval of the Fishery Board who can only see their way to sanction the deepening of the inner basin and under-pinning the quay walls at an estimated cost of £10,320. This intimation was made at a recently-held meeting of Portknockie Town Council, when there was read a letter from the Fishery Board suggesting that the local authority should now submit an application for assistance from the Development Fund for the improvement of the harbour to the Secretary of H.M. Treasury, and—after discussion—the Town Clerk was empowered to prepare the necessary memorial for submission to the Treasury, and also to intimate to the Fishery Board that the Town Council approved of proceeding with the smaller scheme on the understanding that the work be carried out by direct labour. Provost Bruce—in moving accordingly—expressed disappointment at the manner in which harbour schemes were undertaken not only with the view of providing more accommodation for boats but also to provide work for unemployed fishermen.

Harbour Work in Argyll to begin Shortly.

Recently, in the House of Commons, Mr. F. S. Macquisten asked the Secretary of State for Scotland (the Right Honourable William Adamson, M.P.) when the work of erecting and reconditioning the various piers in Argyllshire was to commence, and the reply by Mr. Adamson was that he had now received the report of the Inter-Departmental Committee on Piers and Harbours on the north-east, north and west coasts of Scotland, and—as there was a considerable number of such piers and harbours requiring attention—he was not at the moment considering the question of priority. Although the Secretary of State for Scotland was unable at this stage to indicate to the House of Commons when financial facilities for the development of harbours and piers in the North of Scotland would be available, since then Mr. Adamson has set out on a personal tour of a number of the ports in Argyllshire and the Western Isles with—it is understood—the object of this tour being to decide what harbours and piers should have priority. It is regarded as improbable that Mr. Adamson will be able to visit all the ports in the north, and it is proposed that the Under-Secretary of State for Scotland (Mr. Westwood) will thereafter complete the tour, so that, as soon as possible thereafter, the development of the ports can be undertaken.

Port of Southampton Topics

Work on the Site of the new Graving Dock at Southampton. Picture shows—Dredging the Approach to the Entrance of the new Dry Dock. The Picture was taken at low tide, and gives some idea of the magnitude of the task before the Contractors.

Arrival of New Canadian Pacific Liner.

ONE of the principal events of the month at Southampton has been the arrival of the new Canadian Pacific Liner "Empress of Britain" (42,500 tons), the largest merchant vessel built in the United Kingdom since 1914.

The new liner reached Southampton on April 16th on the conclusion of her trials, and she will remain here until she starts her maiden voyage to Quebec on May 27th. Ranking as the eighth largest liner in the world, the "Empress of Britain" was designed to average 24 knots on her voyages between Southampton and Quebec, a speed which she should have no difficulty in maintaining. During her trials, when loaded to her mean ocean displacement, she attained a maximum speed of 25.52 knots on the measured mile, and 22.6 knots were recorded under cruising conditions with only her two inner engines working.

In the course of her twelve hours' duration trial the "Empress of Britain" broke a world record, her oil consumption per shaft horse power working out at only 0.57 lbs. per hour. Special trials have also been carried out with a new type of boiler, the invention of Mr. John Johnson, Chief Supt. Engineer to the Canadian Pacific Company. Details of the invention have been kept secret, but it is expected that they will mark important advances in ship propulsion.

The "Empress of Britain," which will be associated in service with the "Empress of Australia" and "Empress of France," will set up new records for steaming time between Southampton and Quebec, and her great speed will enable her to clip at least a day off the time of the ocean passage. This means that the actual time spent in the Atlantic will not exceed 3½ days.

Previously the Canadian Pacific have not displayed any great interest in really big ships, for the largest unit in their fleet until last autumn was the "Empress of Scotland" (25,128 tons), which was originally the Hamburg-Amerika liner "Kaiserin Auguste Victoria." That vessel was sold to the breakers at the conclusion of last passenger season, and fire expedited her destruction. Her successor, the "Empress of Britain," is more than 17,000 tons larger than any ship which has previously sailed in the Company's fleet. Shipowners have not hitherto considered the advisability of utilising liners of 40,000 tons and over for any other than the New York route, but the plunge has now been taken, and the Canadian Pacific will doubtless be rewarded for its enterprise.

The "Empress of Britain" is 700-ft. in length, 97-ft. 6-in. in beam and has accommodation for 1,195 passengers.

Greater Activity in Southampton Docks.

April brought greater activity to dockland. During the early months of the year many vessels have been cruising and the passenger business for the ordinary services has been so poor that several companies reduced their schedules. But things looked up in April, and the list of movements was substantial.

One of the events of the month has been the calling of the vessels of the Orient Line on their way from Australia. For some years now, the Company have sent their vessels to Southampton during the height of the passenger traffic to this country, having found it a better plan to land their passengers in the docks here, than to land them by tender at Plymouth.

The Red Star Line has had a somewhat attenuated programme of sailings from Southampton lately, but the weekly sailing was re-instituted as from the departure of the "Westernland" on April 25th. The "Lapland," which has been out of service, and the "Belgenland," which has been on a trip round the world, will be available to take their places with the "Pennland," and the "Westernland" on the American service.

The regular weekly sailings of the Holland-Amerika Line to America have also re-commenced this month.

Work proceeding apace on Dock Extension and New Graving Dock.

During the first four months of the year striking progress has been made with the first section of the dock extension on the Western shore at Southampton.

Many phases of the work of building 3,500-ft. of new deep water quay wall and reclaiming 187 acres of mudland are now in hand, and the preliminaries to the construction of the world's greatest graving dock at Millbrook are engaging the attention of the engineers responsible for this work.

The construction of the graving dock, which will be 1,200-ft. in length and will have a width at entrance of 135-ft., has to be hurried forward with all possible speed, for the dock is being built expressly to accommodate the new 73,000 tons "Cunarder," which is due to be completed by Messrs. John Brown and Co., Ltd., of Clydebank, in the autumn of 1933. No time is being lost in building an enclosing bank around the place where the dock is to be constructed. Until this is completed, thus enabling the enclosed area to be kept more or less dry by pumping, the actual work of excavation, the first step in the creation of a graving dock, cannot be undertaken.

It will be necessary to excavate to a depth of 87-ft. below the final quay level—the top of the graving dock walls—in the hollowing-out process, and this will involve the lifting of over 1,000,000 yards of material, or approximately 1,250,000 tons of earth. Despite the magnitude of the undertaking the engineers fully expect to get the graving dock completed in time to permit the dry-docking of the "Cunarder" either before or after her trials.

With regard to the first section of the dock extension work, highly satisfactory progress has been made. About 70 of the 78 giant monoliths of which the new quay wall is being built have now reached their required depth, and the remainder will do so shortly. The process of sealing with a depth of 15-ft. of concrete the bottoms of the nine wells formed by internal partition walls in each monolith is going along very quickly, and 58 monoliths have been so treated. Several of them have been advanced even further towards completion. This has entailed filling up with excavated material the three wells further from the quay front and then covering the wells with slabs. Mass concrete will eventually cover the whole, and thus form the platform on which cranes and railway lines will be built.

Port of Southampton Topics—continued

Immediately behind the monoliths the cargo and passenger sheds will be constructed, and in this connection it is interesting to mention that much of the foundation piling for this purpose has already been completed.

The pumping and electricity sub-station, the first permanent building to be erected on reclaimed land, has been completed, and the necessary machinery is now being installed. Great strides have also been made with the work of reclamation which is being carried out by a powerful hopper-dredger. This craft has pumped ashore about 400,000 tons of dredged material, mainly sandy clay, since operations were started at the beginning of December last, and by this means approximately 15 acres have been won back from the River Test. This, with the 18 acres previously reclaimed, means that the area of the river bed has been reduced by 33 acres. The pumping will proceed continuously until the whole area is reclaimed.

A start has also been made with the work of extending the reclamation bank, due to the decision of the Southern Railway Company to proceed with the second section of the scheme with the aid of Government assistance.

Statistics for March show Increase over March, 1930.

Southampton Docks statistics for March, compared with figures for the corresponding period last year, afford a more gratifying comparison than those of January and February. The number of vessels inward remained constant, the total being 253. Outward there was an increase of 2, the figure for the past month being 254 as against 252 a year ago. Tonnage, both gross and net, increased. Vessels inward aggregated 1,200,161 tons gross, as compared with 1,118,537, and outward 1,210,755 against 1,165,481. The advances were, therefore, 81,624 tons inward, and 45,274 tons outward. Of net tonnage the total was 654,503 inward, in comparison with 595,868 and 644,803 outward against 619,013, giving increases of 58,635 tons inward, and 25,790 tons outward.

The cargo returns are decidedly brighter in this period, an increase of 3,061 tons being recorded inward, and a decrease of 5,107 tons outward. The totals were 53,596 tons inward as against 50,535, and 33,722 tons outward as compared with 38,829 for the corresponding month last year.

For once in a way the passenger figures were down, for although the inward total increased from 10,731 to 11,876, an advance of 1,145, the outward aggregate fell from 12,693 in March, 1930, to 9,066, a decline of 3,627.

Passenger Trade to Canada commences for Season.

The sailing of the Canadian Pacific Liner "Empress of France" from Southampton, on April 18th, marked the opening of the St. Lawrence route to Quebec and Montreal for the season. For the first few weeks the "Empress of France" has been alone on the chief service of the Canadian Pacific, but in the middle of May she will inaugurate the regular weekly service, being followed by the "Empress of Australia" and the "Empress of Britain."

It is hoped that the passenger trade with Canada this season will justify the full programmes that have been arranged by various companies. At the moment there is every indication that the business from Canada to this country will be quite good, but the forward bookings for Canada are not very large.

Italian Harbour Affairs

ACCORDING to information which has been published by the Istituto Centrale di Statistica the following is a schedule of the main goods imported into some of the leading ports of Italy:—

	January February	Coal Tons	Cereals Tons	Cotton Tons	Raw Metals Tons
Genoa	1931	467,391	113,456	26,963	30,258
	1930	473,907	100,978	33,029	57,195
	1929	417,502	179,176	39,664	68,061
Leghorn	1931	102,476	13,620	297	3,311
	1930	177,814	7,034	595	2,373
	1929	166,370	18,263	392	2,102
Savona	1931	212,805	349	69	14,642
	1930	253,356	1,345	—	14,735
	1929	252,163	—	—	16,532
Civitavecchia ...	1931	87,628	10,957	—	124
	1930	148,207	7,388	24	1,808
	1929	94,373	12,181	—	—
Napoli	1931	107,421	39,508	716	1,771
	1930	156,444	18,983	3,764	2,639
	1929	151,693	122,841	6,510	2 095
Trieste*	1931	459,616	25,355	56,082	1,189
	1930	647,850	169,560	63,165	1,493
	1929	444,616	282,813	63,282	756
Fiume	1931	5,760	161,914	6,990	2.181
	1930	17,656	196,941	10,113	1,781
	1929	11,699	131,192	8,098	2,629

*January-December, 1930.

Figures are already to hand for the first quarter for the Port of Trieste. According to these figures railway traffic and shipping at Trieste during the period from January to March, 1931, reached 1,034,252 tons of goods against 1,200,574 tons for the corresponding period of 1930. Railway traffic has shown a decrease of 69,688 tons, while shipping has shown a decrease of 95,736 tons, thus showing that the position of the Port of Trieste in regard to the countries of the Hinterland is not much affected, but that the depression is the result of decreased local activity. The most important work which is being carried out in the Port of Trieste by the Azienda dei Magazzini Generali, is the construction of five warehouses over a total area of 34,000 square metres on the Molo VI. in the Porto Franco Emanuele Filiberto Duca d'Aosta. These warehouses will afford a storage area of about 60,000 square metres. Although trade is decreasing at Trieste as is noticed by the fact that shipping and railway traffic reached 4,300,000 tons in 1930, against 6,400,000 tons in 1913, and although the question of the Austro-German Union is to put Hamburg into a more advantageous position in the competition against Trieste, yet among the leaders of the Trieste Harbour Board it is felt that the only way to meet the foreign competition is to increase facilities, and to distribute trade in the port according to the country of origin or destination of the various shipments. Warehouses Nos. 62 and 64 fitted with 12 electric cranes built on the quays are already in full operation and are used for the goods handled by the steamers of the Lloyd Triestino engaged in the Indian and Far Eastern services. The Warehouses Nos. 61 and 63 which are to be put into use in October next are to be fitted with 10 electric cranes of 2.5 tons and 6 cranes of 5 tons, of Demag patent, the construction of which has been entrusted to the Stabilimento Tecnico Triestino. In the interior of the warehouse elevators of 4 tons are fitted.

Unloading charges have been reduced and the pilot service has been reorganised at Bari.

The Ministry of Public Works has approved the project regarding the construction of a breakwater 1,200 metres long at Molfetta. This work will be started as soon as the Treasury have the necessary funds at its disposal. According to cables received from Rome it is announced that a credit of 670,000 lire has been voted for carrying out certain harbour improvements in the Port of Manfredonia. Although, in order to ensure the efficiency of trade at this port, a credit of 20,000,000 lire would be necessary, there is no doubt that what has been done with the sum of 670,000 lire ensures, to a certain extent, the safety of operations in the harbour of Manfredonia.

Trade in the Port of Crotone (Aeonian Sea) is showing an increasing tendency and it is expected that at the end of 1931 it will reach 300,000 tons of goods imported and exported. In the course of a recent meeting held at the Chamber of Commerce and Industry of Catanzaro (Consiglio Provinciale dell'Economia) it has been stated that in order to meet the requirements of the enlargements and improvements of this port a credit of 40,000,000 lire would be necessary.

Naples towage and lightermen charges have been reduced according to a decree of the harbourmaster, and further reductions are being considered in other fees.

Also trade at Cagliari (Sardinia) is showing an increase and during 1930 it reached about 320,000 tons of goods imported and exported. An important factor of this progress has undoubtedly been the fact that the port has been provided in the course of the last months of 1930 with 10 electric cranes of 1.5 and 3 tons and with two electric elevators of 2 tons. At present such elevators are used only for the export of salt, but it is hoped that as soon as further improvements are completed it will be possible to use them for the import of coal.

At La Spezia the Societa Nazionale Officine di Savigliano have supplied two electric coal elevators having an unloading capacity from 100 to 150 tons per hour, that is to say about 2,000 to 2,400 tons daily, which have been added to the existing four elevators of practically the same power. The opportunity is being considered of providing the port with a 30-tons electric crane chiefly to handle marble from Carrera. Shipping at La Spezia during 1930 reached 938,971 tons of goods imported and exported against 921,351 tons in 1929.

Dockyard Expense Accounts, 1929

REPORT of the Comptroller and Auditor General (Malcolm G. Ramsay) upon the Dockyard Expense and Manufacturing Accounts for the year ended 31st March, 1930; prepared and submitted for the information of the House of Commons in pursuance of Section 5 of the Exchequer and Audit Departments Act, 1921.

Outcome of Account.

1.—The Programme of Shipbuilding, etc., presented to Parliament with the Navy Estimates for 1929 provided for an expenditure of £18,644,979. The actual expenditure in the year was £17,519,770, being less than the Estimate by £1,125,209.

2.—On Direct Charges the under-expenditure was £843,394, savings of (a) £995,650 on New Construction Dockyard-built Ships and of (b) £200,353 on Repairs being offset in part by an excess of (c) £344,118 on New Construction Contract-built Ships.

The saving under (a) was due to the cancellation of orders for the "Surrey," "Northumberland" and "Maidstone," while the excess under (c) was due in the main to greater progress generally, offset by savings due to the cancellation of the contracts for the Submarines "Rupert" and "Royalist."

On Establishment and Incidental Charges there was a saving of £281,815, due mainly to accounting adjustments referred to in paragraphs 5 and 6 below.

New System of Expense Accounting.

3.—The Accounts under review embody very considerable changes in the Admiralty system of Expense Accounting, which have been introduced as the result of recommendations made by the Committee presided over by Mr. R. S. Hilton. As in the case of the Ordnance Factories, where the costing system was reorganised some years ago, the general object of the changes is to bring the financial and accounting methods into line with modern practice, and thus to facilitate the production of short-period costs and detailed information for the purpose of controlling operations. Expenditure at the Yards is to be brought into account locally under centres of activity, and all oncost will be distributed, on a more detailed and scientific basis, in accounting periods of four weeks. An extended use of mechanical aids to accounting and cost analysis, and the substitution of time-clocking for mustering by ticket are also features of the new system.

It was decided that the new system should be introduced gradually at the Dockyards, and accordingly it was brought into partial operation at Portsmouth during the year under review and has been fully implemented at this Yard in 1930. As from 1st April, 1931, it is to be extended to Devonport and Malta. During the transitional years, therefore, the Expense Accounts will embody figures arrived at partly by the old and partly by the new systems.

Allocation of Indirect Charges.

4.—Consequent on the inauguration of the scheme an Admiralty Committee was set up to review the Establishment and Incidental Charges shown in the Expense Accounts. A large proportion of these charges has always been excluded from the charge to the productive heads of the Programme and written off as "Fleet, Port, National and Unappropriated Charges," owing to the fact that the Dockyards are not merely industrial establishments, but also serve as bases for the fleet and, even as industrial establishments, are equipped on a scale beyond that required for the needs of production and repair in peace time, so as to permit of rapid expansion in an emergency.

As a result of the review revised bases have been laid down for determining the share of local expenditure thus to be written off.

5.—The Committee had further to review the share of Headquarters expenditure which is brought into the account as oncost chargeable to production, and as a result of their findings substantial changes have been made.

Thus, it has been decided to exclude from the accounts such expenditure as is considered to be incurred by the Admiralty in its capacity as an owner or buyer rather than as a builder and manufacturer. The broad view of the Committee was that Headquarters costs should only be allocated to the Yard Expense Accounts in so far as they relate to the general administration and direction of production and repair, to such design and specification as would normally be the concern of the manufacturer, and to the direction and management of the industrial establishments, e.g., the furtherance of economical working, maintenance, renewal and extension of equipment, and purchase of and payment for material.

6.—The effect of this decision has been to exclude from the Indirect Charges appropriated to Production considerable amounts with which under the old practice they would have been debited. In the year under review these sums amount to some £400,000, being about 83 per cent. of the cost of Inspection of Contract Work (Vote 8, III F), and about 66 per cent. of the share of Headquarters Salaries previously charged. This reduction was more than sufficient to off-set additional charges due to the grant of a week's holiday with pay, the increase of the charge for pension liability from 10 per cent. of established pay to 12½ per cent., and the transfer of certain types of expenditure at Portsmouth from direct to indirect charge.

The final outcome of these various factors is that the expenditure on Establishment and Incidental Charges was £4,012,485, being £281,815 less than the Estimate of £4,294,300.

7.—I have no criticisms to make at this stage on the various changes referred to in this Report, and consider that the new system represents a substantial advance in the direction of improved control over the financial working of the Dockyards.

Expenditure on New Construction, etc., 1924 to 1929.

8.—The general course of Naval Expenditure from 1924, as recorded in the Dockyard Expense Accounts, may be seen from the following table showing the direct charges under the principal heads of account (omitting 000's).

	1924	1925	1926	1927	1928	1929
	£	£	£	£	£	£
New Construction—						
Dockyard-built	1,689	2,309	3,540	2,926	2,716	1,506
Contract-built	3,924	4,389	3,986	5,930	5,850	5,528
Small Vessels	109	74	37	571	309	16
Repairs, Alterations, etc. ...	5,893	5,950	5,931	5,833	5,094	5,059
Stores for Maintenance ...	1,520	1,491	1,400	1,394	1,374	1,395

The above figures include the following expenditure on Dockyard Labour:—

	1924	1925	1926	1927	1928	1929
	£	£	£	£	£	£
New Construction ...	1,063	1,102	904	778	757	536
Repairs, Alterations, etc.	3,864	4,129	4,042	3,671	3,480	3,283

Copies of this report (price 3s. 6d., postage extra), giving full details, can be obtained from H.M. Stationery Office at any of the following addresses: London—Adastral House, Kingsway, W.C.2. Edinburgh—120, George Street. Manchester—York Street. Cardiff—1, Saint Andrew's Crescent. Belfast—15, Donegall Square West.

Granaries and Grain-handling Equipment.

Messrs. Henry Simon Ltd., Engineers, of Cheadle Heath, Stockport, have issued a new edition of their catalogue entitled "Granaries and Grain Handling Equipment," and it is, as usual, exceedingly well produced.

The catalogue, which is profusely illustrated, describes in brief the various granaries and grain handling equipment contracts which have been undertaken by Messrs. Henry Simon Ltd. The catalogue describes granaries, pneumatic grain handling plants, mechanical grain handling equipment, granary machinery and warehouse equipment, and will prove of great interest to our readers, who can obtain a copy on application to Messrs. Henry Simon Ltd.

Dredging Contract at Aden.

An extensive harbour dredging contract which was placed with Messrs. K. L. Kalis Sons and Co., Ltd., of Stonehouse, Bishopsgate, London, E.C.2, by the Aden Port Trustees, has been completed 12 months ahead of the contract period of three years.

The saving in time was effected partly by reason of the more favourable monsoon conditions than had been expected, but more particularly by the attention paid by Messrs. Kalis to organisation for rapid execution. The work was carried on day and night without interruption except for various weather delays. The work was completed to the entire satisfaction of the Engineer of the Aden Port Trustees.

Priestman Excavators and Grabs.

Messrs. Priestman Bros., Ltd., of Hull, have just issued a publication illustrating the uses to which their various designs of excavators can be applied. The publication, which is No. 390/30, is exceedingly well produced and copies of these can be had on application to Messrs. Priestman Bros.

They have also issued a leaflet describing the 1931 Priestman Grab, which gives full details of the new Grab which contains entirely original features as compared with their previous ones.

The Great Western Railway's Cardiff Docks

Important Improvements to the General Cargo Equipment

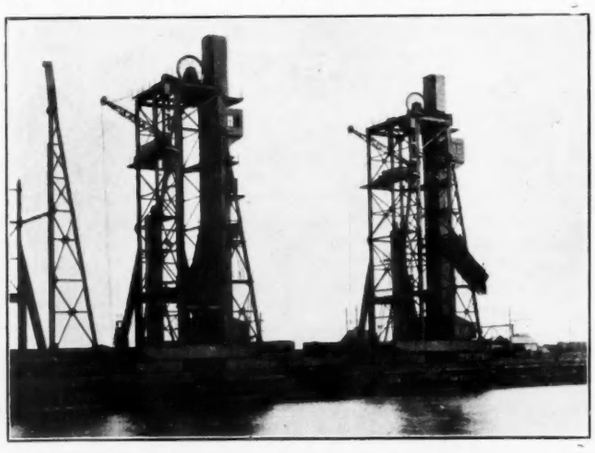
The 12 new Electric Three-ton Level Luffing Jib Cranes at the Queen Alexandra Dock, Cardiff.

THE GREAT WESTERN RAILWAY COMPANY, although suffering severely from the effects of the present depression, have pursued and are continuing a policy of keeping their docks, and the equipment for loading and discharging vessels, in the most efficient and up-to-date condition. Consequently there is no doubt that the Great Western Docks will be prepared to deal with any increase in traffic which may develop from the hoped-for improvement in trade.

At the Bute Docks, Cardiff, work is nearing completion on a battery of 12 new electric 3-ton level luffing jib cranes at the Queen Alexandra Dock and 1 new electric 3-ton level luffing jib crane at the Roath Dock, these machines being allotted to the loading and discharging of general cargoes.

During the week preceding Easter Monday there was brought into use a new moveable coal shipping hoist at the Queen Alexandra Dock, this machine being capable of handling 20-ton wagons. Another similar hoist, the construction of which has been going on concurrently with the completed hoist, is also on the point of being brought into use. These two new hoists are in continuation of the modernisation of coal shipping appliances at this dock, and work is proceeding on a further three hoists of a similar type.

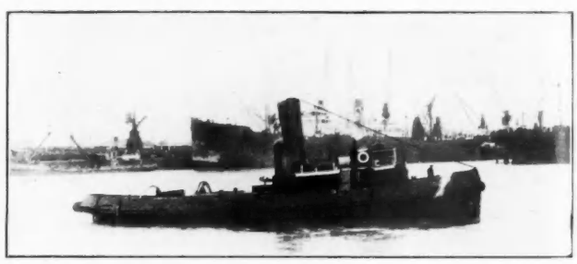
A new twin-screw tug has also just been added to the equipment at the Cardiff Docks. This tug was built by Messrs. C. Hill and Sons, Limited, of Bristol, is 95-ft. long and 24-ft. beam, and is equipped with the latest type of fire and salvage appliances. The vessel is of 800 h.p. and is named "The Earl," being in replacement of the old tug of that name which has rendered service for many years at Cardiff Docks.



Two New Movable Coal Shipping Hoists at the Queen Alexandra Dock. These machines are capable of handling 20-ton Wagons.

A considerable number of new general cargo cranes have also been provided at the Swansea and Newport Docks.

Ever since the amalgamation of the South Wales separate dock undertakings in 1922, the Company has pursued a continuous programme of reconstruction and improvement of existing equipment and provision of new facilities. Naturally this has involved considerable expenditure, and it is to be hoped that the revival of trade (which the action of the Company has shown they confidently anticipate) will be experienced in the very near future, and not only thereby justify the faith of the Great Western Company, but bring a much-needed fillip to the prosperity of the ports and the country generally.



The new Twin-screw Tug "The Earl" which has just been added to the equipment of the Cardiff Docks.

Importation of South African Cattle into Cardiff Docks.

For the first time in the history of the port, Rhodesian cattle were landed at the Bute Docks, Cardiff, on Sunday, April 26th. The Clan liner "Clan Morrison," with 400 head of cattle from Beira, Portuguese East Africa, berthed at the Great Western Railway Company's up-to-date cattle lairs at the Roath Dock, Cardiff.

This importation does not, however, represent by any means the first arrival of live cattle at the Bute Docks, Cardiff, for many thousands have been dealt with there, particularly from Canada.

Cardiff is one of the comparatively few ports in Great Britain at which live cattle may be imported, being licensed for this purpose by the Minister of Agriculture and Fisheries.

Every facility is provided for this important branch of the import trade, and advantages are offered at Cardiff which are comparable with any of the cattle importing ports.

From the shipowners' point of view it is interesting to note that the landing of the cattle takes place from the ship at a convenient point in the Roath Dock, near the entrance lock, thus ensuring rapid despatch.

From the cattle shippers' point of view, also, there are numerous advantages to be considered, foremost among which is that the port is the centre of the large population of South Wales, and is in easy reach of the Birmingham district. In fact, there are 30,000,000 people within a radius of 150 miles from Cardiff.

The cattle are landed at a special berth which directly communicates with the lairs. The lairs are capable of accommodating 950 store or 500 fat cattle, in addition to sheep and pigs, at the same time, and are so constructed that they can be extended to meet further requirements at any time. The most up-to date facilities for the watering, feeding and inspection of the cattle by the Government Inspectors have been provided.

Notes from Far Eastern Ports

Ceylon.

Ceylon's Foreign Trade.

A SHARP decline in Ceylon's export and import trade during February is revealed by the Customs Returns for that month, just issued. Compared with the first two months of 1930 and 1929, this year's figures show the following approximate decreases: Imports, Rs. 21 million less than in 1930, and Rs. 33 million less than in 1929. Exports (Domestic): Rs. 11 million less than in 1930, and Rs. 23 million less than in 1929.

The total imports during the month under review were valued at Rs. 18,071,608. This is Rs. 731,511 less than in February last year, Rs. 4,195,678 less than in January, 1931, and Rs. 804,060 less than in November last, which was the lowest record in 1930.

The total exports of Ceylon products in February this year were valued at Rs. 19,187,398. This is over two million less than the previous month's figure and over seven million less than in February, 1930. The slight improvement in exports in January has thus not been maintained and the February figure is lower than that for any single month in 1930, including December. The revenue from import and export duties in the first two months of the present year declined by Rs. 1,836,148 from the figure for the corresponding period of 1930. The only increases were in the export duties on desiccated cocoanut, fresh cocoanuts, cocoanut oil, copra, poonac and rubber.

The following figures show the distribution of the decrease in imports since the beginning of this year:—

	January, 1931 Rs.	February, 1931 Rs.
Food, Drink and Tobacco ...	10,934,538	8,865,641
Manufactures	2,892,632	3,335,193

It will be seen from the above that the imports of raw materials have increased slightly, but there has been a big falling off in the other item.

Colombo Port Commission.

Many important matters were dealt with at a meeting of the Colombo Port Commission held on March 16th. Among the points considered was the question of rent to be charged for the lease of lots on the Lakeside for barge-repairing purposes. The following conditions were approved: (1) That barges passing through the lake to harbour canal locks during working hours for repair purposes and returning to the harbour during working hours after repair should be allowed through the locks free of charge. (2) That the land should be handed over to the lessees in its present condition, any small buildings, fences, etc., being approved by the Chairman, Colombo Port Commission, and the necessary permission of the Municipality being obtained for the erection of any buildings. (3) That leases should be for short periods in the first instance.

After taking into consideration the disadvantages of the Lakeside Barge Repairing Lots as compared with the Harbour Barge Repairing Lots (i.e., the impossibility of taking larger than 40-ton barges through the lake to harbour canal locks, and the distance from the harbour to the Lakeside Barge Repairing Lots), it was decided that, subject to the above conditions a rental of Rs. 4,000 per acre per annum should be charged for the lots in question.

The chairman pointed out that the Admiralty had originally pressed for the erection of an additional crane for the Graving Dock at Colombo, and that the further improvements and refinements suggested in this crane were required by the Naval Authorities. The original estimated cost of the crane was Rs. 160,000, and the Ceylon Government has agreed to defray half this cost. For these reasons, it was decided to recommend that the cost of any improvements or refinements required by the Naval Authorities should be met by the Admiralty, and that the expenditure by the Ceylon Government in regard to this crane should not exceed Rs. 80,000.

An application made by the Colombo Landing and Shipping Agency, Ltd., for the lease of an office within the Customs premises were next considered. It was, after discussion, decided that the building, which was formerly used as an office by the Customs Preventive Staff, situated on the western side of the Customs premises, be leased to the Agency, at a rental of Rs. 150 per mensem.

A letter dated March 3rd, 1931, from the Standard Oil Company of New York, stated that it has been decided to postpone indefinitely their entering the fuel oil market in Ceylon, and that they are not, therefore, in a position to enter into a lease of the land at Bloemendahl at the present time. The area will, therefore, remain unallocated.

Another letter dated February 20th, 1931, from the Chairman, Municipal Council, and Mayor of Colombo, stating that the duplication of the supply main from Wellampitiya to Elie House Reservoir has been carried out, but that the enlarging of the reservoir outlets to the town mains has yet to be completed.

Colombo Port Commission Appointment.

His Excellency the Officer Administrating the Government of Ceylon has appointed Mr. H. Webster to be Unofficial Member of the Colombo Port Commission representing oil interests, for the year ending 29th February, 1932.

Colombo Harbour Dredging.

During the month of February a total quantity of 32,500 cubic yards of dredged material has been removed from the Colombo Harbour and deposited at sea. The areas dredged were along the South-West Breakwater in Berth No. 4, and side of mooring No. 16 and Berths Nos. 13 and 14. The dredger engaged in the work was "Sir William Matthews."

Number of Vessels that Entered and Cleared Colombo Port.

The number and tonnage of vessels engaged in trade other than country craft which entered and cleared at the Port of Colombo during the period specified were as follows:—

	Vessels engaged in Foreign trade No.	Tons
ENTERED—		
During February, 1931	244	1,075,854
During February, 1930	237	1,032,660
During February, 1929	273	1,086,305
During the Two Months ended February, 1931	504	2,175,762
During the Two Months ended February, 1930	505	2,195,486
During the Two Months ended February, 1929	540	2,206,064
CLEARED—		
During February, 1931	245	1,056,956
During February, 1930	241	1,028,047
During February, 1929	267	1,062,044
During the Two Months ended February, 1931	507	2,182,683
During the Two Months ended February, 1930	508	2,199,103
During the Two Months ended February, 1929	544	2,212,665
	Vessels engaged in Coasting trade No.	Tons
ENTERED—		
During February, 1931	1	3,288
During February, 1930	—	—
During February, 1929	—	—
During the Two Months ended February, 1931	1	3,288
During the Two Months ended February, 1930	—	—
During the Two Months ended February, 1929	1	103
CLEARED—		
During February, 1931	1	2,776
During February, 1930	1	4,177
During February, 1929	1	4,142
During the Two Months ended February, 1931	4	11,051
During the Two Months ended February, 1930	3	3,801
During the Two Months ended February, 1929	5	14,255

Bengal.

Calcutta's Foreign Trade.

The import trade of Calcutta with foreign countries in February showed no improvement on the preceding month's account, the value receding from Rs. 3.97 crores to Rs. 3.63 crores. Exports, too, suffered a severe set-back, the value falling from Rs. 5.59 crores to Rs. 4.66 crores. Compared with the corresponding period of last year, both imports and exports recorded a sharp decline, the values going down from Rs. 6.03 crores to Rs. 3.63 crores and from Rs. 8.11 crores to Rs. 4.66 crores, respectively.

A comparison of the value of the principal imports with the figures for February, 1930, is given below (the figures in brackets representing the increase or decrease as the case may be):—

	In Lakhs of Rupees
Machinery and Millwork	50 (−2)
Cotton Goods	38 (−174)
Sugar	32 (−3)
Grain, Pulse and Flour	31 (−13)
Iron and Steel	22 (−15)
Oils, Minerals	16 (−4)
Instruments, Electrical	13 (−1)
Liquors	13 (−3)
Hardware	9 (−2)
Other Metals	8 (−6)

The general depression in trade affected almost all the principal commodities. Cotton goods suffered the most. The total yardage of piecegoods shrank from 80 million yards to 13 million yards, and the value from Rs. 181 lakhs to Rs. 26 lakhs. Under the head "Sugar," the quantity of refined sugar advanced from 20,000 tons to 28,000 tons, but the value

Notes from Far Eastern Ports—continued.

remained almost level. There were heavy imports of wheat from Australia under the head "grain, pulse and flour." Liquors showed a further improvement over the last month's figures, the value rising from Rs. 10 lakhs to Rs. 13 lakhs.

The variations in the values of the principal exports, through the Port of Calcutta, as compared with the trade in February, 1930, are indicated below:—

	In Lakhs of Rupees.
Jute Manufactures	147 (—195)
Tea	83 (—14)
Jute, raw	82 (—90)
Grain, pulse and flour	26 (—5)
Hides and Skins	25 (—6)
Lac	16 (—40)
Iron, pig	12 (—11)
Manganese ore	4 (—4)

Almost all the principal commodities on the export side suffered in value, due to the general slackness in trade. There was an improvement in tea and grain, etc., but this was insignificant as compared with the general decline. Jute, both raw and manufactured, suffered the most. Raw jute and tea were shipped mostly to the United Kingdom and gunny bags to Java. Gunny cloth, lac, skins and manganese ore went mostly to the United States of America. Germany took most of the hides, and rice which formed the bulk of the trade under the head "Grain, pulse and flour," went mostly to Mauritius. Pig iron as usual was shipped largely to Japan.

Bally Bridge.

The third span of the Bally Bridge, which is to cross the Hooghly approximately 8 miles north of Calcutta, has been successfully floated into position. There is practically no change in the flotation of the third span, weighing 1,700 tons, to that of the second span, which took place last December, except that all the riveting of the third span has been done, and girders erected in the record time of 7 weeks. The channel in which the two pontoons, each of 1,000 tons capacity, were taken into gaps in the staging at low tide, silted up, and before the flotation took place was scoured by dredgers so as to ensure enough water to float the pontoons bearing their great weight.

Madras.

Foreign Trade of Madras.

Imports of foreign piece goods into India through the Port of Madras during 1930 are reported to have fallen to 297 million yards as compared with 565 million yards during the previous year, showing a decrease of 268 million yards or say, about 48 per cent. The United Kingdom's share of the 1930 imports was 142 million yards as compared with 281 million yards in 1929, and Japan's share was 121 million yards as against 290 million yards, respectively. Imports of yarn in 1930 amounted to 16 million lbs. as compared with 28 million lbs. in 1929.

The under-noted statistics of the imports of piece goods and yarns into Madras, during January, 1931, as compared with January, 1930, show how steadily the foreign piece goods trade with Madras has fallen away:—

		January, 1930	
		Quantity	Value
TEXTILES—COTTON.			
Twist and Yarn	lbs.	928,960	Rs.1,315,325
Piecegoods	yds.	10,257,516	Rs.3,066,106
		January, 1931	
		Quantity	Value
TEXTILES—COTTON.			
Twist and Yarn	lbs.	610,908	Rs. 681,262
Piecegoods	yds.	9,443,288	Rs.1,980,048

Tuticorin Harbour.

The report of the Tuticorin Port Trust for 1929-30 shows that the general trade depression was accentuated by the Ceylon Government's ordinance, which came into force in October, 1929, and which prohibited the import of cattle into the Island.

Both in the tonnage and in the value of the sea-borne trade of the port there has been a considerable fall. There was, however, an increase of foreign exports and imports and of coasting exports. Coasting imports, which normally provide the main share of revenue, showed a steep decline. The principal imports were coal, machinery and motor cars; while grain, kerosene oil in tins and raw silk formed the remainder.

There was an increase in the tonnage of steamers that entered the port.

Cochin Harbour.

Cochin Harbour, which has been under construction for the past six years, has been opened for the anchoring of all kinds of seagoing vessels from April 5th. From a statement made by the Madras Government it is seen that the maintenance dredging in the approach channel to the harbour was commenced on the night of December 8th, 1930, and carried on practically continuously until the work was completed on the morning of January 13th, 1931.

The length of channel re-dredged over its entire width of 450-ft. was 14,550-ft. In addition, 459-ft. of the northern cut (150-ft. wide) was re-dredged. It was not considered necessary to re-dredge the southern silting shelf this season, as it was comparatively flat with a depth of 26 to 27-ft. at L.W.O.S.T.

The total number of dredging or pumping hours was 669½ out of a possible working time of 711½ hours. All previous records for continuity of work have now been passed, the dredger having worked on an average for 11 hours 17 minutes per 12-hour shift or 94 per cent. of the possible working time.

The quantity of material removed from the channel was 1,219,400 cubic yards, or 156,440 cubic yards more than the quantity of silt removed during the previous season. This is accounted for by the fact that the average depth in the channel after dredging this season is 6-in. more than in the last season. The material dredged was mainly soft clay and silt west of the crest of the old bar, and sand, shells and silt east of the crest.

The average depth in the channel after this season's dredging is 36.5-ft. in the section west of the crest (against 34.9 last season), and 36.6-ft. east of the crest (against 36.4 last season).

The weather throughout was normal except on December 24th and 26th, 1930, when there were strong winds and rough sea. There were no mishaps. The cost of dredging worked out to 2 annas 1.8 pies per cubic yard, allowing for due proportion of all major repairs and renewals and spares. As in the last season, there was no interference to shipping while the dredging was in progress.

Siam.

Number and Tonnage of Vessels calling at Bangkok Port.

The number and tonnage of foreign steamers and sailing ships called at the Port of Bangkok during the month of February, 1931, totalled 79 and 74,606 respectively. The number of passengers amounted to 2,078 of which 1,933 came from China. The largest ship in harbour during the month was the Danish m.s. "Selandia," 3,163 tons net.

Rajavaradis Landing Case.

The claim of the Royal Naval Workshop and Dockyard for Tcs. 2,300,000 being damage done to the Rajavaradis Landing when the s.s. "Nerite" ran into it some time ago is still a matter of court discussion. The Asiatic Petroleum Co. (Siam), Ltd., the agents of the steamer, considered the estimates too high. They have requested a revision of the figures by the engineers staff of the above department who said that the damage done was considerable, affecting the foundations of the landing besides other things, and accordingly stood by their original estimate.

U.S. Exports to Siam reach 92,000 Dollars in a Month.

The total exports from the United States to Siam, through the Port of Bangkok during the month of January has totalled 92,000 dollars, while imports into the United States from Siam were valued at 27,000 dollars. The above-mentioned imports to Siam included the following: Machinery 36,000 dollars; electrical equipment 23,000 dollars; automobiles 13,000 dollars; fish 2,000 dollars; iron and steel 9,000 dollars; tyres and tubes 1,500 dollars; canned silk 31,000 pounds and 140,000 cigarettes.

Bombay.

Bombay Port Trust.

At a meeting of the Trustees of the Port of Bombay held on 10th March, 1931, the following were the main items of business disposed of:—

On retirement of the present incumbents, the Board reduced the grade pay of the post of Assistant Accountant (Loan), Accounts Department and that of two overseers' posts in the Engineer's Department. These retrenchments will result in an aggregate saving of about Rs. 3,100 per annum.

A surrender of leasehold Rent Roll No. 319 (area about 311 square yards) at the junction of Cochin Street and Frere Road expiring in 1935 was accepted and a new lease of the same area was granted for 50 years at revised rates for shops and residences.

A renewal on revised terms for a period of 11½ years was also sanctioned in respect of Rent Roll No. 108 (area about 568 square yards), Elphinstone Estate.

At a meeting of the Trustees of the Port of Bombay held on 24th March, 1931, the following main items of business were disposed of:—

The election of the following gentlemen to serve as Trustees of the Port of Bombay for two years from 1st April, 1931, was recorded:

Messrs. G. L. Winterbotham; E. C. Reid; W. L. Clement; R. R. Haddow; G. H. Cooke (representing the Chamber of Commerce, Bombay).

Sir Purshotamdas Thakurdas, Kt., C.I.E., M.B.E.; Messrs. Lalji Naranji; Lakhmidas Rowjee Tairsee; Vithaldas Damodar

Notes from Far Eastern Ports—continued

Govandji; Vithaldas Kanji (representing Indian Merchants' Chamber).

A. Geddis (representing the Millowners' Association).

Messrs. Meyer Nissim; Hoosenally M. Rahimtoola (representing the Municipal Corporation).

A number of licenses for stevedoring vessels in the docks and for cleaning, painting and repairing vessels in the Merewether and Hughes Dry Docks were renewed for 1931-32.

The Board accepted the tender of Mr. Bomanji Dhunjibhoy, which was the lowest, for the supply of daily labour for cleaning Port Trust plant and vessels during 1931-32.

The following lease proposals were dealt with:—

A 30-year renewal at revised rates of leasehold Rent Roll No. 163, Elphinstone Estate, for godowns and residences.

A 99-year lease of a plot of land on Apollo Reclamation admeasuring 791 square yards was granted to Mr. Minocher Palanji Dadachanji for first-class residences.

A yearly tenancy of land (area 178 8/9 square yards) adjoining leasehold Rent Roll No. 927, Sewri, was granted to the Texas Company (India), Ltd., for the erection of garages.

The Board sanctioned an expenditure estimated at Rs. 3,300 for the provision of refractors to improve the electric lighting at Wadala Railway Yard and quarters and on the Wadala and Sewri Oil Depot roads. This is estimated to effect a saving of about Rs. 4,000 a year in consumption charges.

The Board approved certain proposals for submission to Government regarding utilisation of the surplus assets in the Sinking Fund Accounts towards reduction of capital debt and debt charges.

At the conclusion of the meeting the chairman expressed the great regret of the Board at the impending retirement of Sir Leslie Hudson, who first joined the Board in 1922 and had served as a Trustee for an aggregate period of 8½ years. The chairman said that he personally was greatly indebted to Sir Leslie for valuable assistance and advice on many occasions while his sound common sense and wide business experience had always been unreservedly placed at the disposal of his colleagues on the Board and had been of the greatest value to the administration of the Trust.

At a meeting of the Trustees of the Port of Bombay held on the 7th April, a Government Notification was recorded nominating the following gentlemen to serve as Trustees of the Port of Bombay for two years from 1st April, 1931, under the provisions of the Port Trust Act:—

Sir Ernest Jackson, Kt., C.I.E.; Major-General G. A. Weir, C.B., C.M.G., D.S.O.; D. S. Burn, Esq., M.Inst.T.; T. A. Stewart, Esq., I.C.S.; Rear-Admiral H. T. Walwyn, C.B., D.S.O., R.N.; Syed Munawar, Esq.; A. R. Dalal, Esq., I.C.S.; C. W. E. Arbuthnot, Esq., C.I.E.

The Board appointed committees under the provision of the Act for the two years 1931-33.

The tender of the Cement Marketing Company of India, Ltd., for the supply of 600 tons "Swastika" brand Portland cement for maintenance works during 1931-32 at Rs. 47/- per ton f.o.r. Bombay Port Trust Railway, was accepted.

After considering a representation from the Indian Vegetable Products, Ltd., regarding the docks wharfage rate on vegetable products and ghee substitutes, the Board decided, in pursuance of their policy of encouraging indigenous industries and having regard to the fact that the products in question are packed for shipment in single tins weighing up to 42 lbs., to reduce the wharfage by 50 per cent. for such packages, retaining the existing rate for packages exceeding that weight; the corresponding rates at the Bunders being also revised proportionately subject to the sanction of Government to the revisions.

To give effect to the convention recently adopted by the International Labour Conference, requiring the weight of heavy packages of 1 metric ton and over to be marked on the packages, the Board sanctioned, subject to Government approval, suitable by-laws to regulate the marketing of heavy packages for export at the Docks and Bunders.

Jugoslavian and Near Eastern Port Matters.

ACCORDING to the statistics which have just been published, shipping at Istambul during the month of January, 1931, included 700 ships representing 1,477,957 n.r.t. against 618 and 1,166,241 n.r.t. during the corresponding month of 1930. Among the vessels arrived during the first month of 1931 there were:—

	No.	N.R.T.
Italian	148	367,858
Greek	141	264,352
British	98	203,175
Turkish	94	88,100
French	30	87,743
Roumanian	30	44,457
Norwegian	29	86,825
German	27	57,665
Russian	23	37,894
Dutch	22	45,263

Following the statements which have been made to the press in connection with the reorganisation of the Istambul Harbour Authority, it is understood that a representative of the Turkish Government has recently travelled to London in order to study the organisation of the Port of London, and that he will also visit Antwerp and Rotterdam. Upon his return to Ankara a decision will be definitely taken.

According to information supplied from Smyrna shipping at that port during 1930 included the following tonnages:—

	No.	N.R.T.
Turkish	1,411	611,411
Italian	204	367,681
British	158	261,370
French	60	206,380
Dutch	49	89,375
German	45	67,083
American	17	53,143
Russian	46	52,032
Jugoslav	38	39,130
Japanese	9	37,410
Greek	69	35,004
Belgian	13	22,536
Swedish	17	19,196
Norwegian	5	13,694
Bulgarian	13	13,116
Roumanian	8	4,126
Polish	3	1,182
	2,165	1,893,899

Shipping during 1930 has shown a decrease of 117,777 tons in respect of 1929. In connection with the participation of the various countries to the trade of the Port of Smyrna it should be noted that the first place is occupied by Turkey. Although the participation of Italy has shown a decrease of 27,395 n.r.t. compared with 1929, it has resumed second place, and the first, among foreign countries, the British flag having shown a decrease of 13,694 n.r.t.

The United States Mercantile Marine is showing an increasing activity at Smyrna, and the ships of the American Export Lines, when they find it impossible to obtain cargo at Black Sea ports, come to Smyrna where they load dried figs and grapes.

According to information which has been supplied by the Jugoslav Government it would appear that the construction of the new quay at Dubrovnik has been completed, while at Spalato (Split) several electric portal cranes have been fitted.

According to official statistics, which have been published by the Maritime Section of the Split Chamber of Commerce and Industry, it appears that during 1930 shipping at Jugoslav ports included the arrival and the clearance of 183,916 ships representing 29,907,022 gross tons. The participation of the various countries has been as follows: Jugoslav, 168,743 ships and 22,000,000 tons; Italian, 13,674 ships and 5,500,000 tons; British, 343 ships and 930,000 tons; Greek, 241 ships and 209,000 tons; German, 56 ships and 124,000 tons, etc. In connection with the development of shipping in Jugoslavia, the question of the congestion in the Port of Sussak is being raised. While the Railway Administration has started the repairs to the cranes and warehouses in the Jugoslav Free Zone in the Port of Fiume it does not at present appear that they have decided to use it, and during the last few weeks trials have been made on the new railway line connecting the Port of Sussak to the Martinschizza Bay and to the harbour of Buccari. According to information from a Jugoslav source this line is to be inaugurated in the course of the next few months. According to ing. Kladic of the Jugoslav State Railways, Fiume had in 1913 a traffic of 1,555,000 tons of goods, and the port had at its disposal, an area of 344,000 square metres, and about 5,000 metres of quayage. The Port of Sussak has at present an area of 35,000 square metres, but has only 1,000 metres of quayage. Traffic in the port of Sussak had reached in 1930, 890,000 tons of goods, that is about 50 per cent. of the whole pre-war shipping of the Port of Fiume, while it does not possess but one-fifth of the quayage of Fiume.

The Port of London Authority.

London's Shipping.

During the week ended March 20th, 932 vessels, representing 886,395 net register tons, used the Port of London. 521 vessels (701,749 net register tons) were to and from Colonial and Foreign Ports and 471 (184,646 net register tons) were engaged in coastwise traffic.

* * * *

During the week ended March 27th, 920 vessels, representing 894,364 net register tons, used the Port of London. 497 vessels (721,519 net register tons) were to and from Colonial and Foreign Ports, and 423 (172,845 net register tons) were engaged in coastwise traffic.

* * * *

During the week ended April 3rd, 872 vessels, representing 836,657 net register tons, used the Port of London. 511 vessels (660,547 net register tons) were to and from Colonial and Foreign Ports and 361 (175,510 net register tons) were engaged in coastwise traffic.

* * * *

During the week ended April 10th, 1,000 vessels, representing 923,547 net register tons, used the Port of London. 535 vessels (750,907 net register tons) were to and from Colonial and Foreign Ports and 465 (172,640 net register tons) were engaged in coastwise traffic. The total of 923,547 net register tons of shipping is higher by nearly 60,000 net register tons than the average of the previous five weeks.

On April 9th, 51 vessels, representing over 425,000 tons, were loading or discharging frozen and chilled meat, grain, tobacco, wool and general merchandise in the Royal Victoria and Albert and King George V. Docks. This is indicative of great activity, but is not a record for the number of vessels to be simultaneously working at this, the largest group of docks in the Port of London.

* * * *

During the week ended April 24th, 885 vessels, representing 861,359 net register tons, used the Port of London. 523 vessels (691,422 net register tons) were to and from Colonial and Foreign Ports, and 362 (169,937 net register tons) were engaged in coastwise traffic.

Timber Arrivals.

Although the timber season does not commence in earnest until May, six timber-laden vessels arrived in the Port of London from Baltic Ports during the week ended April 3rd. They were the s.s. "Windau" and "Croxdale" (Danzig), the s.s. "Otava" and "Savonia" (Abo), the s.s. "Ragnhild" (Windau) and the s.s. "Veri" (Murmansk).

The main parcels consisted of 2,445 standard Deals, Battens and Boards, 26,922 bundles and 62,392 pieces Red and Whitewood, and 27,725 pieces Hardwood.

* * * *

Six timber-laden vessels arrived in the Port of London from Baltic Ports during the week ended April 10th. They were the s.s. "Kirsten Maersk" and "Dvina" (Murmansk), the s.s. "Mathilda" (Noorkoping), the s.s. "Abava" (Windau), the s.s. "Skodsborg" (Danzig) and the s.s. "Thornbury" (Kirkenes).

The main parcels consisted of 2,744 standards Deals, Battens and Boards, 24,990 pieces Sleepers, 47 standards Boxboards, and 39 standards Hardwood.

* * * *

Five timber-laden vessels arrived in the Port of London from Baltic Ports during the week ended April 24th. They were the s.s. "Nereo," "Spigerborg" and "Kustas" (Danzig), the s.s. "Bjorneborg" (Abo) and the s.s. "Gauja" (Riga and Windau).

The main parcels consisted of:—2,511 standards Deals, battens and boards; 13,125 pieces Deals and ends; 319 standards Hardwood; 36 tons Oak Staves; 225 loads Sleepers; 50 loads Redwood; 2,870 pieces Roundwood.

Tenders Wanted for Hopper Barge Auxiliary Plant.

The Commercial Counsellor to His Majesty's Embassy, Buenos Aires, reports that the Director General of Navigation and Ports of the Argentine Ministry of Public Works is calling for tenders, to be presented in Buenos Aires by the 5th June, 1931, for the supply and delivery of one marine Diesel engine of 400 h.p. together with certain auxiliary plant for a hopper barge now under construction.

Firms desirous of offering plant of British manufacture can obtain further particulars of this call for tenders upon application to the Department of Overseas Trade, 35, Old Queen Street, London, S.W.1. Reference number A.X. 10883 should be quoted.

Self-propelling Bucket Barge-loading Dredger for the Tees Conservancy Commissioners.

Wm. Simons and Co., Ltd., Renfrew, launched, on the 2nd April, complete with all machinery on board, with steam up and ready for work, the Barge Loading Bucket Dredger T.C.C. Dredger No. 10, built by them for the Tees Conservancy Commissioners.

The vessel, which has been built under the direction of the Messrs. A. J. Barry, Commissioners' Consulting Engineers, K. A. Barry and C. G. Du Cane, is well equipped for dealing with all classes of material, being capable of discharging into Barges on either side at the rate of 1,000 tons per hour, and of dredging to a depth of 50-ft. below water level.

A set of Compound Surface Condensing Engines supplied by steam from two Multitubular Boilers constructed for a working pressure of 145 lbs. per square inch drives the Dredging Machinery or the Propeller as may be required.

The deck machinery includes steam gear for raising and lowering the bucket ladder, steam gear for turning the buckets when under repair, steam shoot hoisting gear, steam crane and powerful independent steam bow and stern winches for manoeuvring purposes and for regulating the cut of the Dredger while at work.

The vessel, which is electrically lit throughout, is equipped with comfortable cabins for officers and crew, and is built under Lloyd's Survey to their highest class.

PATENTS

IT is desired to secure the full commercial development in the United Kingdom, of British Patent No. 231,013, which relates to Improvements in Sheet Steel Piling, either by way of sale or the grant of Licences on reasonable terms.

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complete with lantern, flashers, gas bottles, moorings, etc. The Buoy was bought new in June, 1926, and has been kept in good condition. Further particulars can be had by applying to the Harbour Master, Stornoway, Isle of Lewis.

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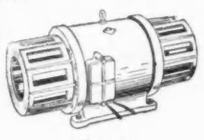

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